ATC ASSOCIATES OF NORTH CAROLINA, P.C.
Engineering Individual Solutions

2725 East Millbrook Road
Suite 121
Raleigh, NC 27604
Tel: 919-871-0999
Fax: 919-871-0335
www.atcassociates.com
N.C. Engineering License No. C-1598

November 1, 2012

Mr. Gordon Box
NC Department of Transportation
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina, 27699-1589

Reference: Preliminary Site Assessment
Parcel 171
1308 West 14th Avenue, Greenville, NC 27834
State Project: U-3315
WBS Element 35781.1.2
ATC Project No. 45.19873.0007

Dear Mr. Box:

ATC Associates of North Carolina, P.C. (ATC) has prepared this report to document the results of a preliminary site assessment (PSA) conducted at the above referenced site. The assessment was conducted in accordance with the Technical and Cost Proposal submitted to the North Carolina Department of Transportation (NCDOT) on July 27, 2012, and a Notice to Proceed letter issued by the NCDOT on August 16, 2012. This report describes field activities, laboratory results, estimated impacted soil quantities, and conclusions based on the collected data.

1.0 BACKGROUND INFORMATION

According to the request for technical and cost proposal (RFP) dated July 10, 2012, parcel 171 (site) is located at 1308 West 14th Avenue in Greenville, North Carolina. Note that the Pitt County online parcel information system (OPIS) indicates that the site is comprised of two adjacent county parcels. The northernmost county parcel shares a building with parcel 55 toward the northeast and both parcels are owned by the same property owner (Jonathon Sutton). The shared building houses an operating grocery/convenience store. The function of parcel 171 is the front entrance of the building and an adjacent parking lot extending southeast to Myrtle Street.

The site lies within the coastal plain of North Carolina and is underlain by the Yorktown formation, which generally consists of fossiliferous clays and sands. The site lies in the Tar-Pamlico river basin and groundwater flows generally to the northeast across the site. A groundwater gradient map for the site and surrounding parcels is included as ***Figure 1.***

Though parcel 171 has been identified for total take status, NCDOT requested soil and groundwater assessment was completed only for the area within the proposed NCDOT right-of-way and/or easement as indicated on the construction plans. A parcel identification map is included as ***Figure 2***.

As per the Technical and Cost Proposal, ATC obtained a report provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut. The report was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the site. ATC also reviewed the "unmappable" (also referred to as "orphan") listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the property in question based on the partial street address, city, or zip code. No unmappable sites were identified by ATC as being within the approximate minimum search distance from Parcel 171 based on the site reconnaissance and/or cross-referencing to mapped listings. In addition, Parcel 171 was not listed on any federal/state/local databases reviewed for this part of the historical assessment. The Sanborn Maps for the site depict the property as vacant from 1923 to 1958. The property building first appears in the 1974 aerial photograph. Information prior to 1974 depicts the site as vacant. The complete EDR report is included in ***Appendix A.***

2.0 FIELD ACTIVITIES

2.1 Geophysical Survey

Prior to performing assessment activities, ATC contracted Stantec Consulting Services, Inc. (Stantec) to perform a geophysical survey of the site. The purpose of the survey was to locate USTs and/or other buried structures on the parcel. This was to be done in the area of the proposed NCDOT right of way and included proposed excavations for drainage lines, utilities, and slope stake cuts. The survey was conducted on July 18 through 19, 2012 and included electromagnetic (EM) induction-magnetic detection and ground penetrating radar (GPR) surveys. According to Stantec's survey, no USTs and/or other buried structures were present on the parcel. The complete geophysical report is provided in ***Appendix B.*** Based on the findings of the survey and proposed construction details, ATC performed a drilling event to assess soil and groundwater conditions only in areas within the proposed (by NCDOT) right-of-way and/or easement. Details of the soil and groundwater assessment are included in ***Sections 2.2*** and ***2.3***.

2.2 Soil Assessment

Based on the results of the geophysical survey and in anticipation of a total take by the NCDOT, a soil assessment was completed on-site. On August 3, 2012, ATC mobilized to the site with South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to conduct sampling activities. Over the course of the event, seven borings (SB171-1 through SB171-6 and TW171-1) were advanced using direct-push technology (DPT) drilling techniques. Prior to the drilling, Stantec was contracted to conduct utility clearance in conjunction with the geophysical survey investigation. The NCDOT and North Carolina's 811 service were also notified prior to field activities.

The locations of the borings are shown on the attached ***Figure 3***. Each boring was advanced to a depth of five feet below ground surface (bgs) via hand auger prior to utilizing DPT drilling

techniques to complete the sampling. Soil samples were collected every 1 to 3 feet and screened with a photo-ionization detector (PID). Soils encountered consisted primarily of tan to gray silty sands and clays. All PID readings were below the instrument detection limit. Boring logs are included in ***Appendix C***.

One soil sample from each boring was submitted for laboratory analysis. This was determined by either submitting the interval with the highest PID reading, or, if not applicable, the deepest interval at which proposed construction would take place. Samples were submitted to SGS Analytical Perspectives (SGS) in Wilmington, North Carolina. Following proper chain-of-custody protocol, the samples were placed in laboratory supplied containers in an ice filled cooler for analysis of Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) and Diesel Range Organics (TPH-DRO) by EPA Method 8015 Modified. A discussion of the laboratory results is provided in ***Section 3.0***.

2.3 Groundwater Assessment

ATC supervised SAEDACCO during the installation of temporary well TW171-1 on August 7, 2012. The boring was advanced to a depth of five feet bgs via hand auger prior to utilizing DPT drilling techniques to complete the well installation activities. Temporary well TW171-1 was installed to a depth of 12 feet bgs using 10 feet of 0.010-inch machine slotted 1-inch poly vinyl chloride (PVC) well screen and solid PVC riser. The annular space of the boring was filled with washed silica sand to an approximate depth of 2 feet bgs. The location of the temporary well is shown on the attached ***Figure 3*** and a boring log is included in ***Appendix C***.

Following the temporary well installation, ATC gauged an approximate depth to water level of 4.39 feet below the top of well casing. A peristaltic pump and dedicated polyethylene tubing were used to purge approximately one gallon prior to collecting a groundwater sample. The sample was submitted to SGS under chain-of-custody protocol for analysis of VOCs by EPA Method 8260B. Following sampling, the top of well casing was surveyed for vertical elevation using standard surveying practices from a temporary benchmark with an arbitrary, assumed elevation of 100.00 feet. This was done in conjunction with adjacent temporary wells installed on the surrounding parcels. Following surveying, the borings were filled with native soil and finished to approximately 6 inches below surface grade with bentonite. The remainder of the boring was then filled using material to match the surrounding surface.

3.0 LABORATORY RESULTS

The results of the laboratory analyses for soil samples collected on-site indicated no detectable concentrations of TPH-GRO, however, detectable concentrations of TPH-DRO were indicated in numerous samples. Comparison of detected concentrations to the NCDENR action level of 10 milligrams per kilogram (mg/kg) indicated exceedences of TPH-DRO in SB171-2 through SB171-6 and TW171-1.

The results of laboratory analyses for groundwater sample TW-171-1 did not indicate any compounds at concentrations above NC Title 15A NCAC 2L .0202 Groundwater Standards (2L Standards). Only one compound, chloromethane, was detected above laboratory detection limits but below 2L Standards. The laboratory analytical report is included in ***Appendix D*** and a

summary of the laboratory results for the soil and groundwater sampling are provided in ***Tables 1*** and ***2***, respectively.

4.0 IMPACTED SOIL ASSESSMENT

The results of the soil and groundwater assessment indicate that soil has been impacted above the NCDENR action level. Therefore, ATC proceeded with estimating the quantity of impacted soil as directed in the RFP. Specifically, soil samples collected from the 0-2.5 feet bgs interval in borings SB171-2 through SB171-6 and TW171-1 were used to calculate volumes in two locations. At the request of the NCDOT, volume calculations are separated into two categories. The first volume estimation represents the total quantity of impacted soil on-site. The second volume estimation represents the quantity of impacted soil that will need to be handled during the proposed construction. The volume to be handled during the proposed construction was estimated based on proposed drainage, utility, and cut/fill construction elevations provided by the NCDOT. Further delineation of impacted soil estimates are based on parcel boundaries and are classified as "on-site" and "off-site" areas. Quantities are estimated in cubic yards and converted to tons using an NCDOT provided multiplier of 1.5 tons per cubic yard.

For the first volume estimation, ATC calculated a volume of approximately 349.3 cubic yards (523.95 tons) and 95.36 cubic yards (143.04 tons) for the total volume of impacted soil on-site and off-site, respectively. For the second volume estimation, ATC calculated a volume of approximately 209.58 cubic yards (314.37 tons) and 57.22 cubic yards (85.83 tons) for the volume of impacted soil that may need to be handled during proposed construction activities on-site and off-site, respectively. It should be noted that the exact horizontal extent of impacted soil has not been fully delineated. As such, ATC's estimations should be considered approximations and actual quantities may vary. If the NCDOT requires a greater level of assurance regarding the extent, additional sampling could be performed for confirmation. Detailed calculations, references, and ATC's assumptions are included in ***Appendix E***.

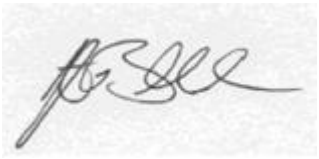
5.0 CONCLUSIONS

ATC has completed PSA activities at the Parcel 171 site in Greenville, North Carolina. The results of the assessment indicate that soil at the site has been impacted above NCDENR action levels. Groundwater assessed on-site did not indicate constituents above 2L Standards. Based on a review of the site's historical data, geophysical investigation, and field assessment, ATC concludes that the impacted soil may be associated with former commercial and/or industrial activities at the site. ATC recommends that the collected data be provided to the NCDENR Division of Waste Management. If impacted soil or groundwater is encountered during construction activities, appropriate measures should be taken to ensure worker safety. In addition, any impacted soil or groundwater disturbed during construction should be handled and disposed of in accordance with applicable regulations.

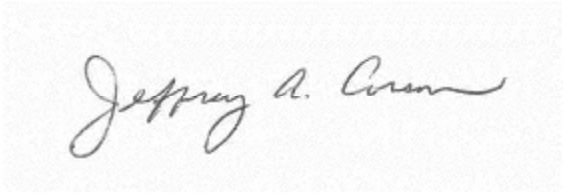
ATC appreciates the opportunity to assist the NCDOT with this project. If you have questions or require additional information, please do not hesitate to contact us at (919) 871-0999.

Sincerely,
ATC Associates of North Carolina, P.C.

Corey M. Scheip
Staff Scientist



Justin C. Ballard, P.G.
Project Geologist



Jeffrey A. Corson
Project Manager

Attachments:

1. Table 1 – Soil Analytical Data
2. Table 2 – Groundwater Analytical Data
3. Figure 1 – Project Groundwater Gradient Map
4. Figure 2 – Parcel Identification Map
5. Figure 3 – Sample Location Map
6. Figure 4 – Soil Analytical Data Map
7. Figure 5 – Groundwater Analytical Data Map
8. Appendix A – EDR Report
9. Appendix B – Geophysical Investigation Report
10. Appendix C – Boring Logs
11. Appendix D – Laboratory Analytical Report
12. Appendix E – Volumetric Calculations

TABLES

TABLE 1

PSA
SOIL ANALYTICAL DATA

PARCEL 171
GREENVILLE, PITT COUNTY, NORTH CAROLINA
ATC PROJECT NO. 45.19873.0007
WBS ELEMENT NO. 35781.1.2

EPA Method:				5030/8015	3550/8015
Boring I.D.	**Depth (feet)**	**Sampling Date**	**PID Reading (ppm)**	**TPH-GRO**	**TPH-DRO**
SB171-1	0-2.5	08/03/2012	0	<3.63	6.98
SB171-2	0-2.5	08/03/2012	0	<3.63	**20.7**
SB171-3	0-2.5	08/03/2012	0	<3.63	**17.2**
SB171-4	0-2.5	08/03/2012	0	<3.88	**14.6**
SB171-5	0-2.5	08/03/2012	0	<3.46	**38.6**
SB171-6	0-2.5	08/03/2012	0	<3.57	**17.8**
TW171-1	0-2.5	08/06/2012	0	<3.42	**14.9**
NCDENR Action Level				**10**	**10**
Soil-to-Groundwater MSCC				**--**	**--**
Residential MSCC				**--**	**--**
Industrial/Commercial MSCC				**--**	**--**

Notes:
1. TPH = Total petroleum hydrocarbons.
2. GRO = Gasoline range organics.
3. DRO = Diesel range organics.
4. Concentrations reported in milligrams per kilogram (mg/kg).
5. "<" = not detected at or above the laboratory detection limit.
6. MSCC = Maximum Soil Contaminant Concentration Levels.
7. NE = Not established.
8. NA = Not analyzed.
9. MTBE = Methyl tertiary butyl ether.
10. Values in **BOLD** indicate levels above Soil-to-Groundwater MSCCs and/or the NCDENR Action Level.
11. # = Health based level > 100%.

TABLE 2

PSA
GROUNDWATER ANALYTICAL DATA

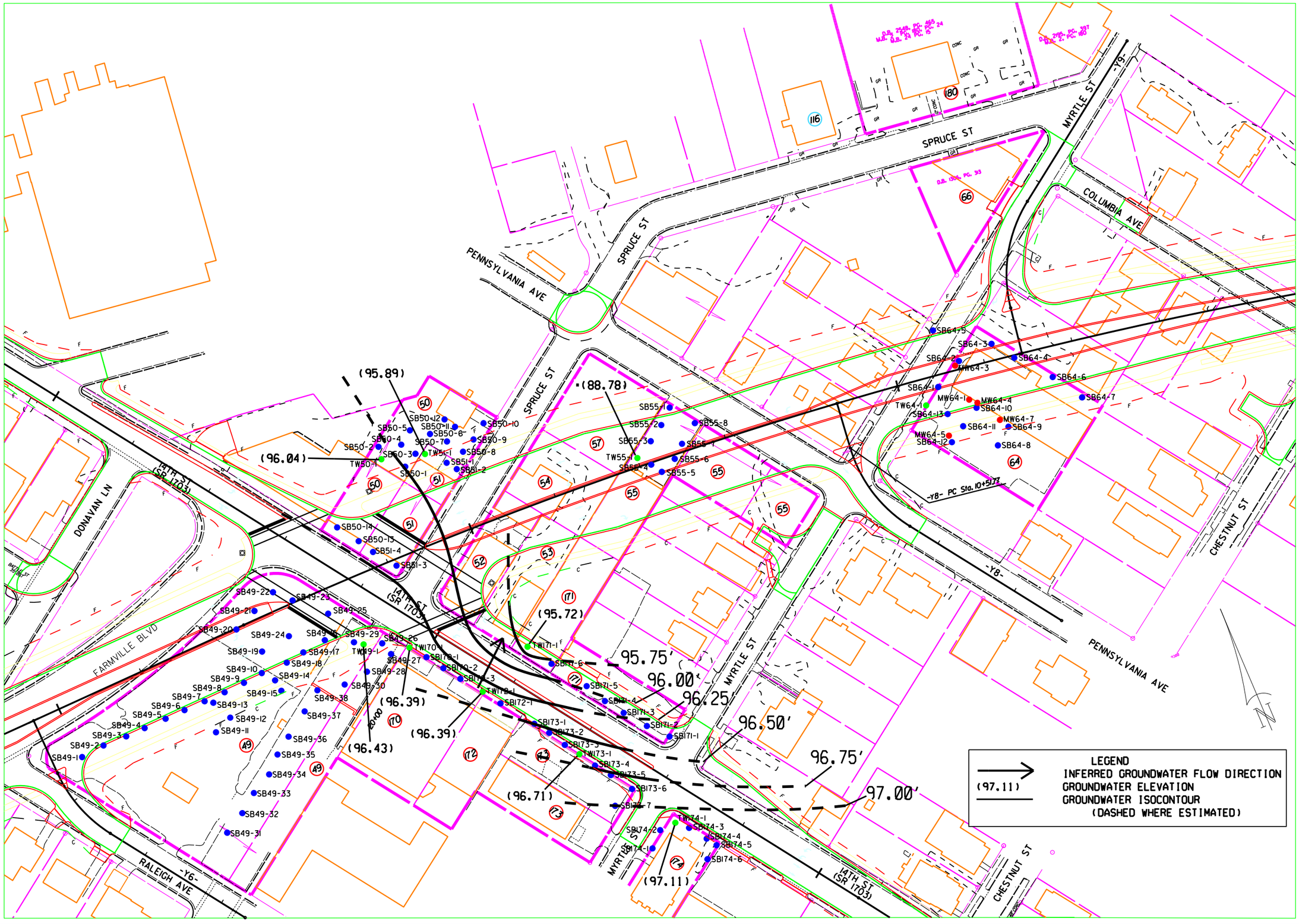
PARCEL 171
GREENVILLE, PITT COUNTY, NORTH CAROLINA
ATC PROJECT NO. 45.19873.0007
WBS ELEMENT NO. 35781.1.2

Analytical Method		EPA Method 8260B							
Contaminant of Concern		Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE	Naphthalene	Chloromethane
Well ID	Date Collected								
TW171-1	08/09/2012	<1.0	<1.0	<1.0	<1.0	NE	<1.0	<1.0	1.0
2L Standard (mg/l)		**1**	**600**	**600**	**500**	**NE**	**20**	**6**	**3**
GCL (mg/l)		**5,000**	**260,000**	**84,500**	**85,500**	**NE**	**20,000**	**6,000**	**3,000**

Notes:

1. "<" or ND = Not detected at or above the laboratory detection limit.
2. Concentrations are reported in micrograms per liter (µg/l) = parts per billion.
3. Concentrations in bold print equal or exceed the NCDENR 2L Standard (2L).
4. NCDENR = North Carolina Department of Environment and Natural Resources.
5. GCL = Gross Contaminantion Level.
6. NE = Not Established.
7. MTBE = Methyl Tertiary Butyl Ether.
8. Gross Contamination Levels for Groundwater are referenced in the Guidelines for Assessment and Corrective Action, November 2008, updated January 2010.
9. BTEX = Benzene, Toluene, Ethylbenzene, Total Xylenes
10. Temporary well TW171-1 was installed on 8/7/2012, sampled on 8/9/2012, and abandoned on 8/9/2012.

FIGURES



NOTES:
1) WELL TW55-1 NOT USED TO CONSTRUCT CONTOURS.

TITLE FIGURE 1
PROJECT GROUNDWATER GRADIENT MAP
STANTONSBURG ROAD/TENTH STREET CONNECTOR FROM
MEMORIAL DRIVE (US13) TO EVAN STREET
GREENVILLE, NC
NCDOT PROJECT U-3315

CAD FILE

WBS ELEMENT 35781.1.2

PREP. BY CS

REV. BY JB

SCALE 1"= 100'

DATE 10-31-2012

PROJECT NO. 45.19873.0007

ATC
ATC Associates of North Carolina, P.C.
RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMINATE UTILITY EASEMENT
- FILL LINE
- CUT LINE

CHL	CHAIN LINK
CB	CATCH BASIN
RCP	REINFORCED CONCRETE PIPE
EOT	EDGE OF TRAVEL
MH	MANHOLE
TC	TERRA COTTA PIPE
◙	TRAFFIC SIGNAL POLE

ATC Associates of North Carolina, P.C.
RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335

PROJECT NO.	DATE	SCALE	REV. BY	PREP. BY
45.19873.0007	10-31-2012	1"=60'-0"	KN	JB

TITLE FIGURE 2
PARCEL IDENTIFICATION MAP
JONATHAN & TODD SUTTON PROPERTY - PARCEL 171
1308 W 14TH ST
GREENVILLE NC 27858

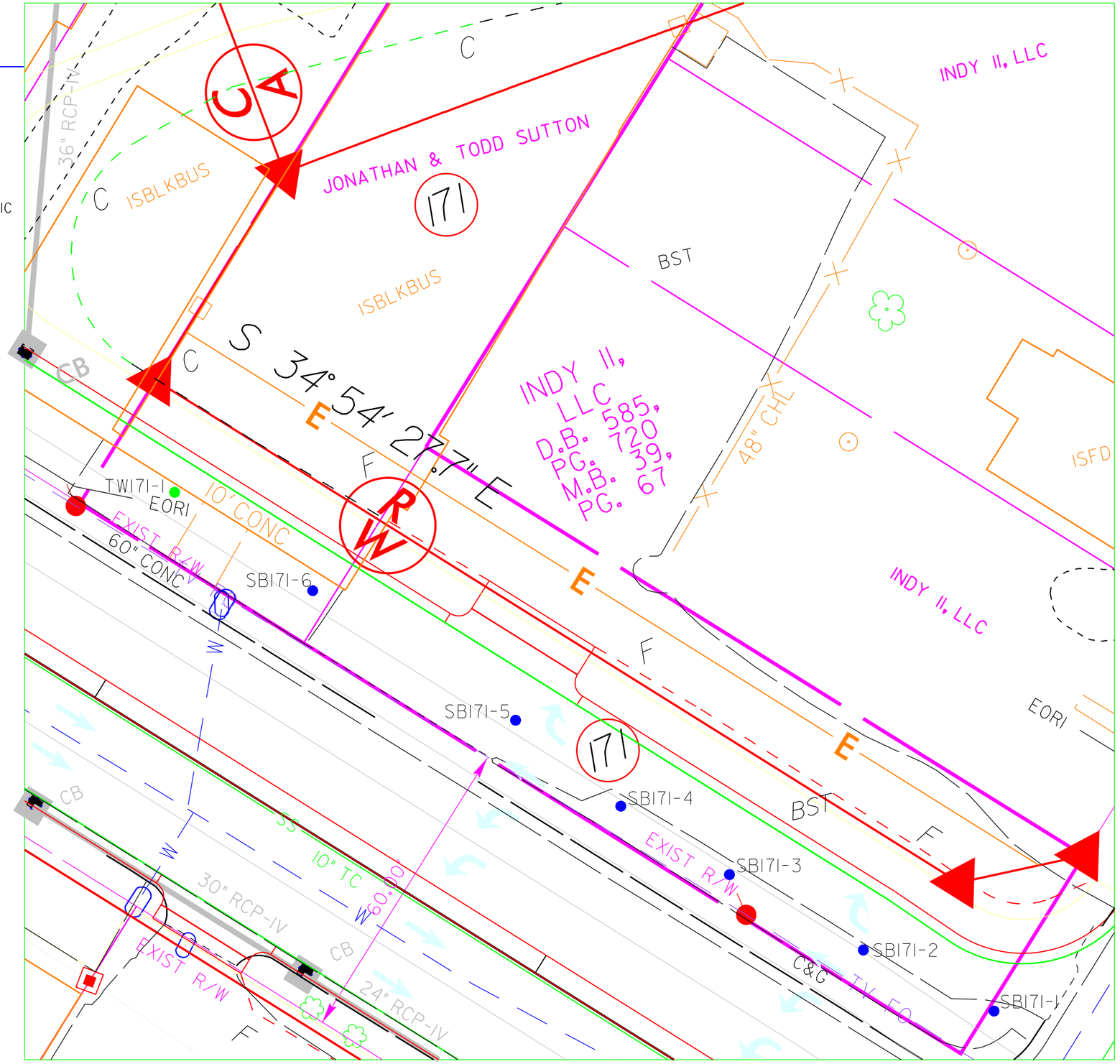
WBS ELEMENT	CAD FILE
35781.1.2	

NOTES:

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- U/G ELECTRIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMINATE UTILITY EASEMENT
- FILL LINE
- CUT LINE

CHL	CHAIN LINK
CB	CATCH BASIN
RCP	REINFORCED CONCRETE PIPE
EOT	EDGE OF TRAVEL
MH	MANHOLE
TC	TERRA COTTA PIPE
	TRAFFIC SIGNAL POLE
	UTILITY POLE
L	LIGHT POLE
	SOIL BORING LOCATION
	TEMPORARY WELL LOCATION



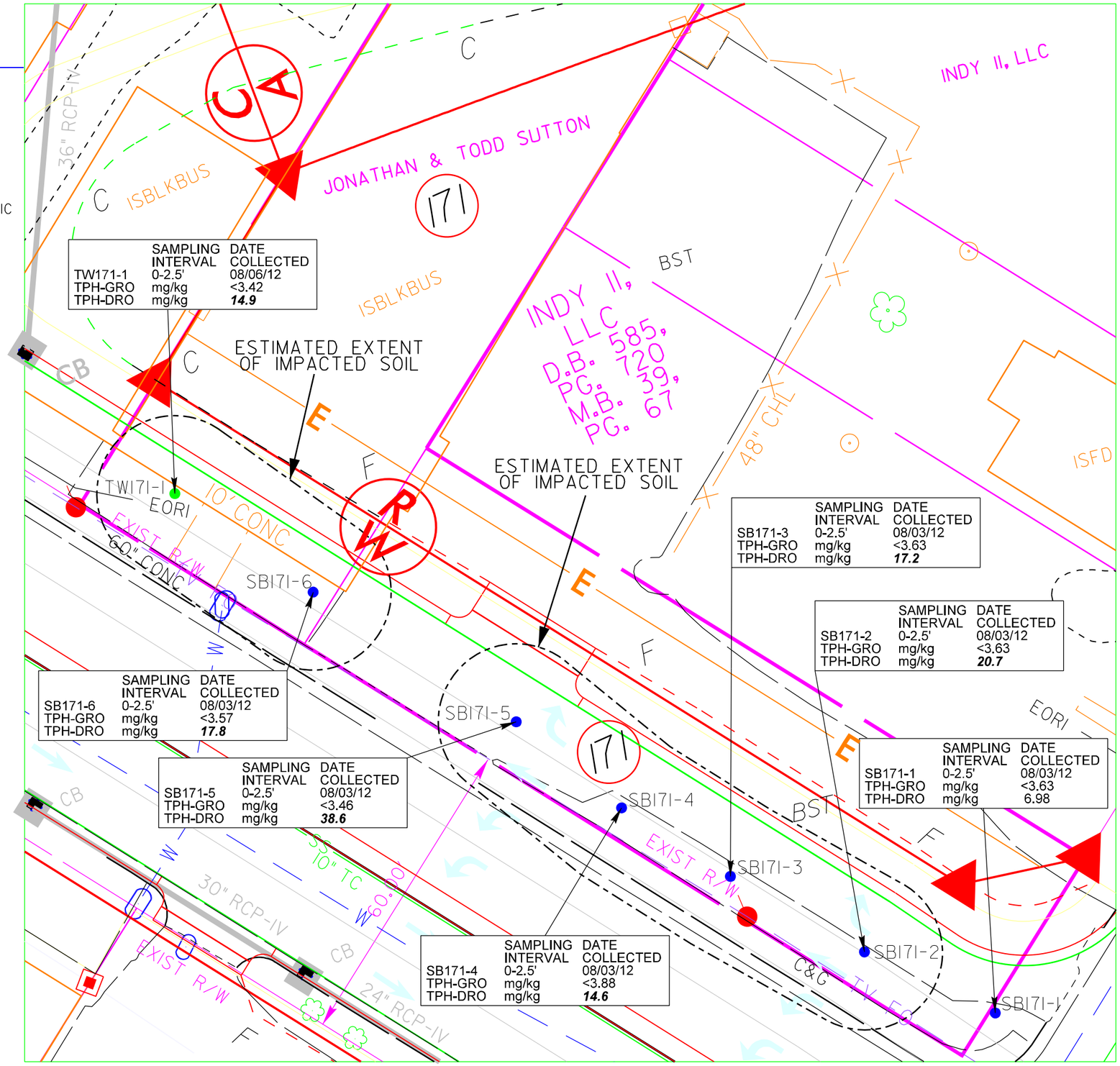
NOTES:

TITLE	FIGURE 3 SAMPLE LOCATION MAP JONATHAN & TODD SUTTON PROPERTY - PARCEL 171 1308 W 14TH ST GREENVILLE NC 27858
CAD FILE	
WBS ELEMENT	35781.1.2
PREP. BY	JB
REV. BY	KN
SCALE	1"=20'-0"
DATE	10-31-2012
PROJECT NO.	45.19873.0007

ATC Associates of North Carolina, P.C.
RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- U/G ELECTRIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMANENT UTILITY EASEMENT
- FILL LINE
- CUT LINE
- CHL CHAIN LINK
- CB CATCH BASIN
- RCP REINFORCED CONCRETE PIPE
- EOT EDGE OF TRAVEL
- MH MANHOLE
- TC TERRA COTTA PIPE
- TRAFFIC SIGNAL POLE
- UTILITY POLE
- L LIGHT POLE
- SOIL BORING LOCATION
- TEMPORARY WELL LOCATION
- ESTIMATED EXTENT OF IMPACTED SOIL (DASHED WHERE INFERRED)



NOTES:
1) VALUES IN BOLD INDICATE LEVELS ABOVE SOIL-TO-GROUNDWATER MAXIMUM SOIL CONTAMINANT CONCENTRATIONS (MSCC) AND/OR NCDENR ACTION LEVELS.

ATC Associates of North Carolina, P.C.
RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335

SCALE	DATE	PROJECT NO.
1"=20'-0"	10-30-2012	45.19873.0007

REV. BY	PREP. BY	WBS ELEMENT
JB	CS	35781.1.2

TITLE FIGURE 4
SOIL ANALYTICAL DATA MAP
JONATHAN & TODD SUTTON PROPERTY - PARCEL 171
1308 W 14TH ST
GREENVILLE NC 27858

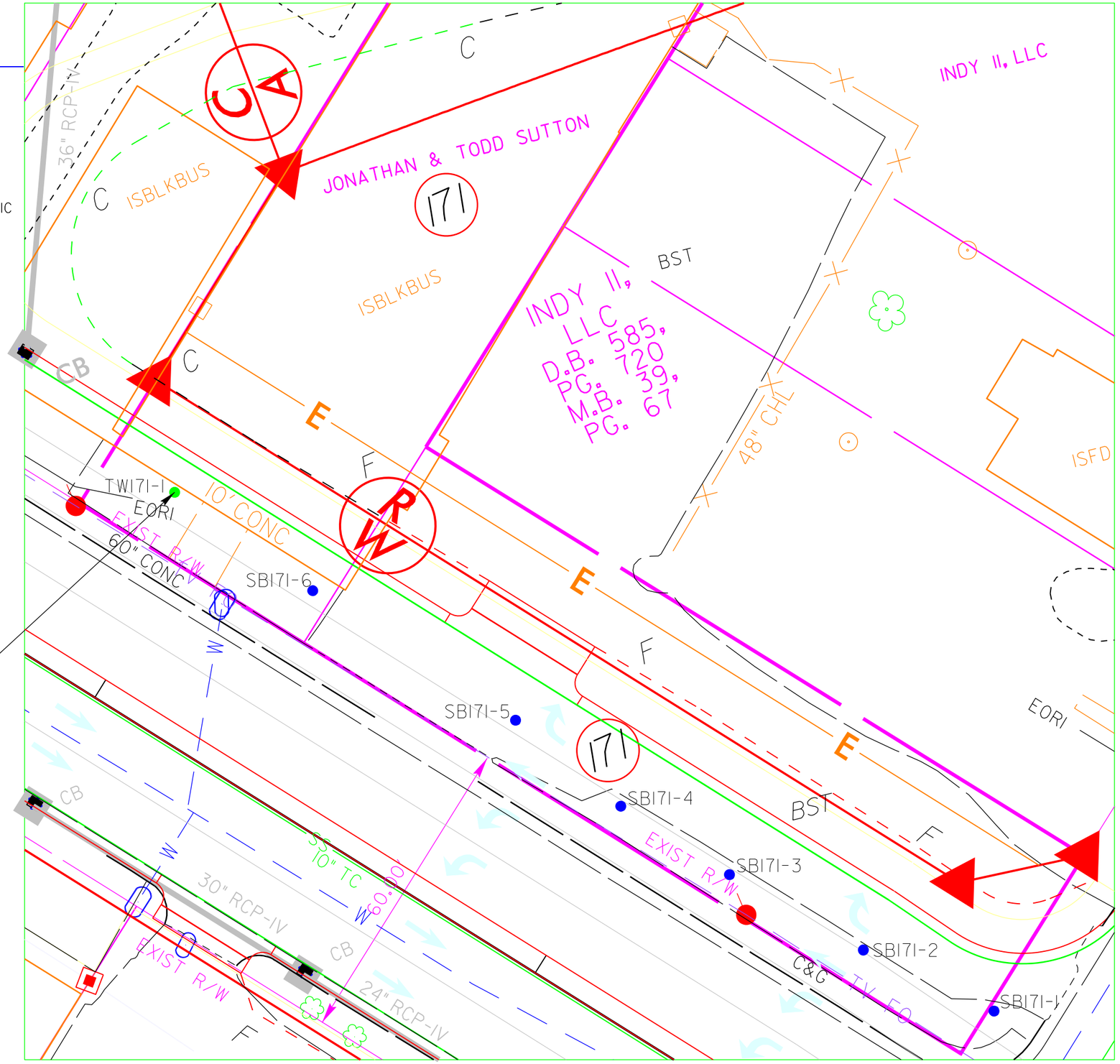
CAD FILE

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- U/G ELECTRIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMANENT UTILITY EASEMENT
- FILL LINE
- CUT LINE

CHL	CHAIN LINK
CB	CATCH BASIN
RCP	REINFORCED CONCRETE PIPE
EOT	EDGE OF TRAVEL
MH	MANHOLE
TC	TERRA COTTA PIPE
	TRAFFIC SIGNAL POLE
	UTILITY POLE
L	LIGHT POLE
	SOIL BORING LOCATION
	TEMPORARY WELL LOCATION

		DATE COLLECTED
TW171-1		08/01/12
BENZENE	µg/L	<1.0
TOLUENE	µg/L	<1.0
ETHYLBENZENE	µg/L	<1.0
TOTAL XYLENES	µg/L	<1.0
MTBE	µg/L	<1.0
NAPHTHALENE	µg/L	<1.0
CHLOROMETHANE	µg/L	1.02



NOTES:
1) VALUES IN BOLD INDICATE LEVELS AT OR ABOVE NC 2L STANDARDS.
2) TW171-1 SET AT 12' BELOW GROUND SURFACE (BGS) WITH A SCREENED INTERVAL OF 2-12' BGS.

ATC Associates of North Carolina, P.C.
RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335

SCALE	DATE	PROJECT NO.
1"=20'-0"	10-30-2012	45.19873.0007

REV. BY	PREP. BY	WBS ELEMENT
JB	CS	3578.1.2

TITLE FIGURE 5
GROUNDWATER ANALYTICAL DATA MAP
JONATHAN & TODD SUTTON PROPERTY - PARCEL 171
1308 W 14TH ST
GREENVILLE NC 27858

CAD FILE

APPENDIX A

EDR REPORT

U-3315
West 14th Street
Greenville, NC 27834

Inquiry Number: 3363129.5
July 10, 2012

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography July 10, 2012

Target Property:

West 14th Street

Greenville, NC 27834

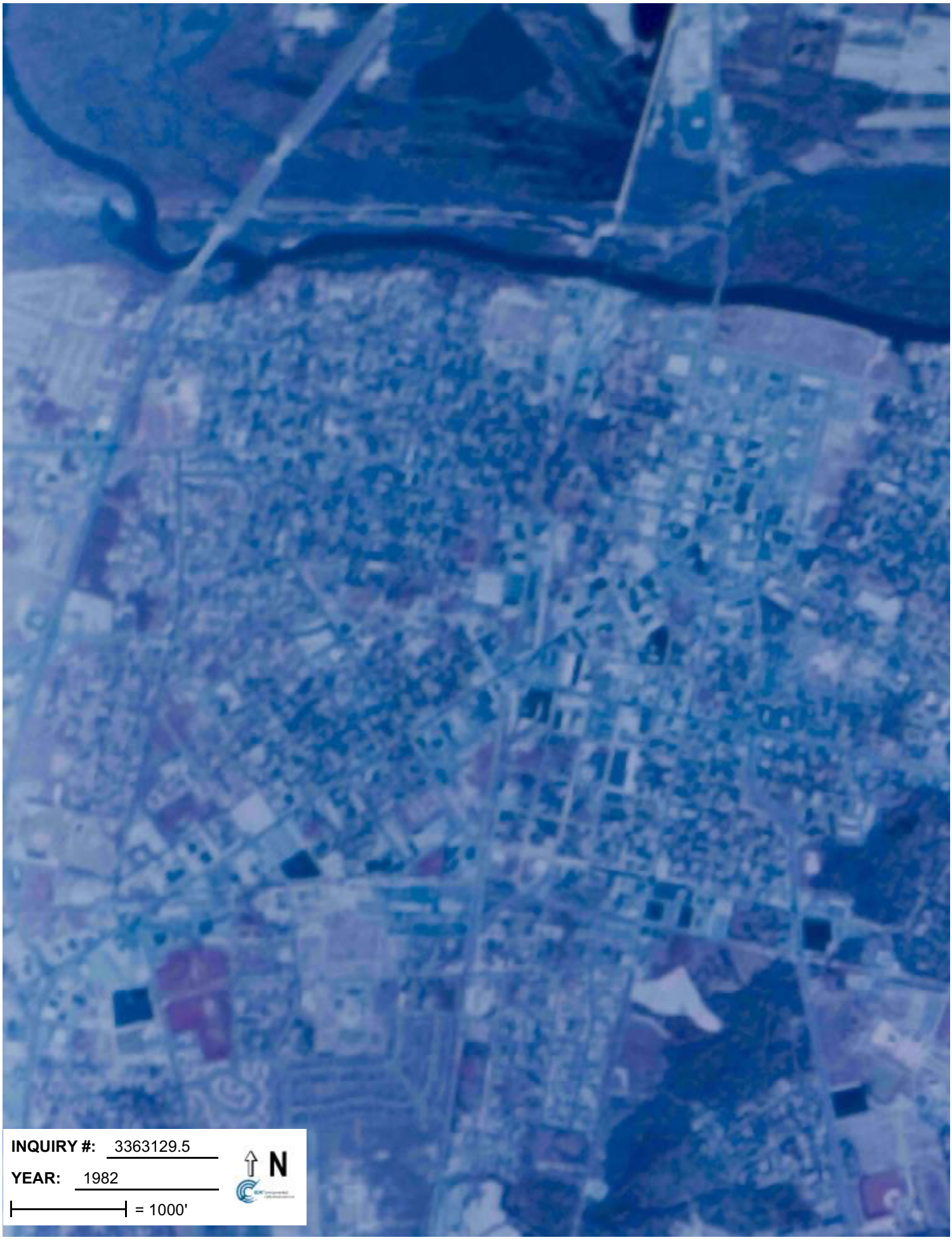
Year	***Scale***	***Details***	***Source***
1957	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC;/Flight Date: March 10, 1957	EDR
1961	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC;/Flight Date: October 16, 1961	EDR
1974	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC;/Flight Date: April 10, 1974	EDR
1977	Aerial Photograph. Scale: 1"=750'	Panel #: 35077-E4, Greenville SW, NC;/Flight Date: January 30, 1977	EDR
1982	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC;/Flight Date: March 29, 1982	EDR
1993	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC;/Composite DOQQ - acquisition dates: March 08, 1993	EDR
1999	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC;/Flight Date: September 23, 1999	EDR
2005	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC;/Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC;/Flight Year: 2006	EDR
2008	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC;/Flight Year: 2008	EDR


INQUIRY #: 3363129.5
YEAR: 1957
= 500'
N


INQUIRY #: 3363129.5
YEAR: 1961
= 1000'
N


INQUIRY #: 3363129.5
YEAR: 1974
= 1000'
N


INQUIRY #: 3363129.5
YEAR: 1977
= 750'
N


INQUIRY #: 3363129.5
YEAR: 1982
= 1000'
N


INQUIRY #: 3363129.5
YEAR: 1993
= 500'
N


INQUIRY #: 3363129.5
YEAR: 1999
= 1000'
N


INQUIRY #: 3363129.5
YEAR: 2005
= 500'
N


INQUIRY #: 3363129.5
YEAR: 2006
= 500'
N


INQUIRY #: 3363129.5
YEAR: 2008
= 500'
N

U-3315
West 14th Street
Greenville, NC 27834

Inquiry Number: 3363129.3
July 10, 2012

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

7/10/12

Site Name:
U-3315
West 14th Street
Greenville, NC 27834

Client Name:
ATC Associates Inc. #45
2725 East Millbrook Road
Raleigh, NC 27604

EDR Inquiry # 3363129.3

Contact: Jeff Corson

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by ATC Associates Inc. #45 were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: U-3315
Address: West 14th Street
City, State, Zip: Greenville, NC 27834
Cross Street:
P.O. # NA
Project: NA
Certification # D067-4C5F-9194

Maps Provided:

1958
1946
1929
1923

Sanborn® Library search results
Certification # D067-4C5F-9194

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

ATC Associates Inc. #45 (the client) is permitted to make up to THREE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Sanborn Sheet Thumbnails

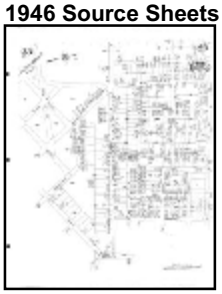
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1958 Source Sheets

Volume 1, Sheet 23

Volume 1, Sheet 25

1946 Source Sheets



Volume 1, Sheet 23

Volume 1, Sheet 25

1929 Source Sheets

Volume 1, Sheet 23

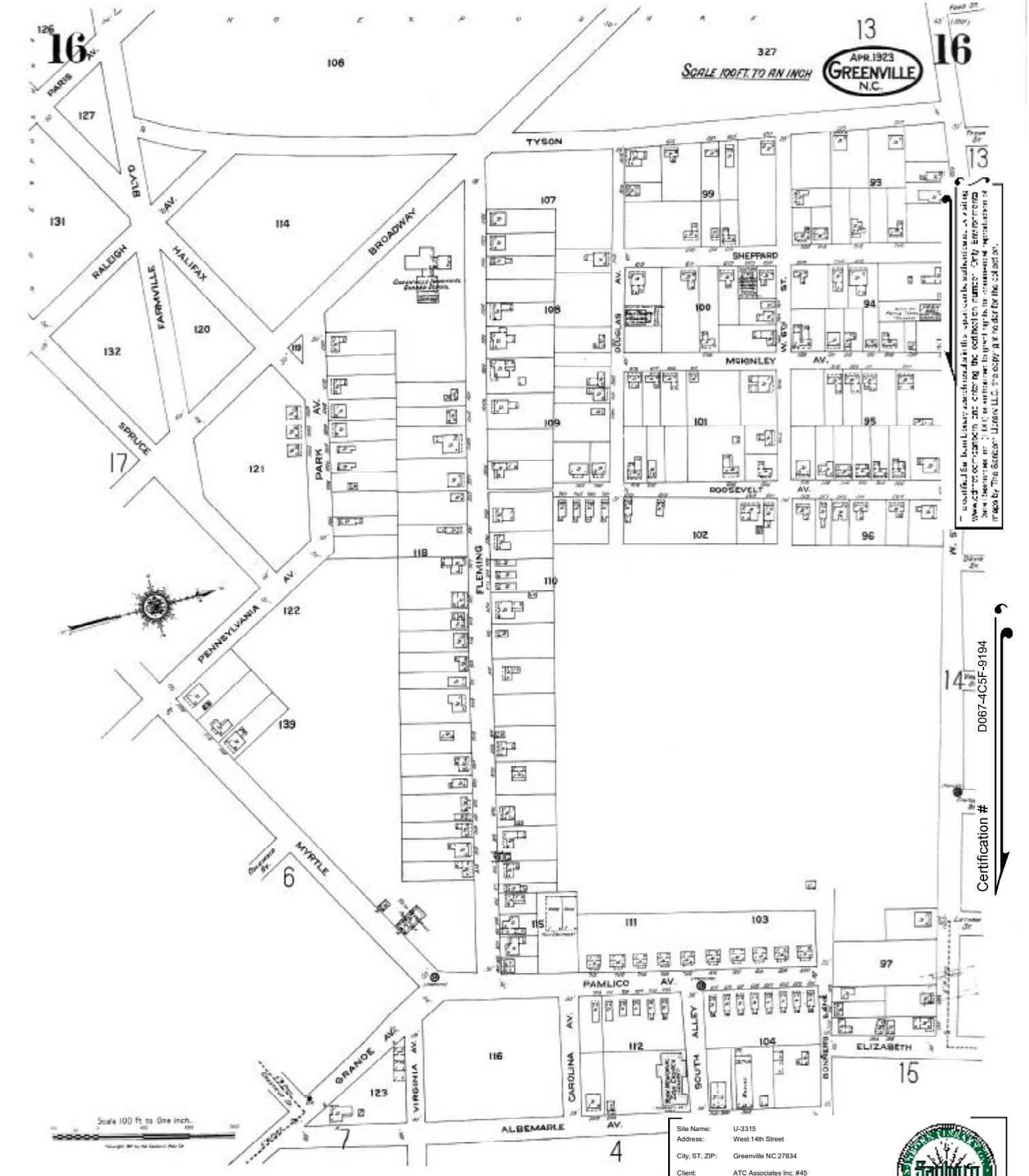
Volume 1, Sheet 25

1923 Source Sheets

Volume 1, Sheet 16

Volume 1, Sheet 17

1923 Certified Sanborn Map



Certification # D067-4C5F-9194

Site Name:	U-3315
Address:	West 14th Street
City, ST, ZIP:	Greenville NC 27834
Client:	ATC Associates Inc. #45
EDR Inquiry:	3363129.3
Order Date:	7/10/2012 9:52:03 AM
Certification #	D067-4C5F-9194
Copyright:	1923

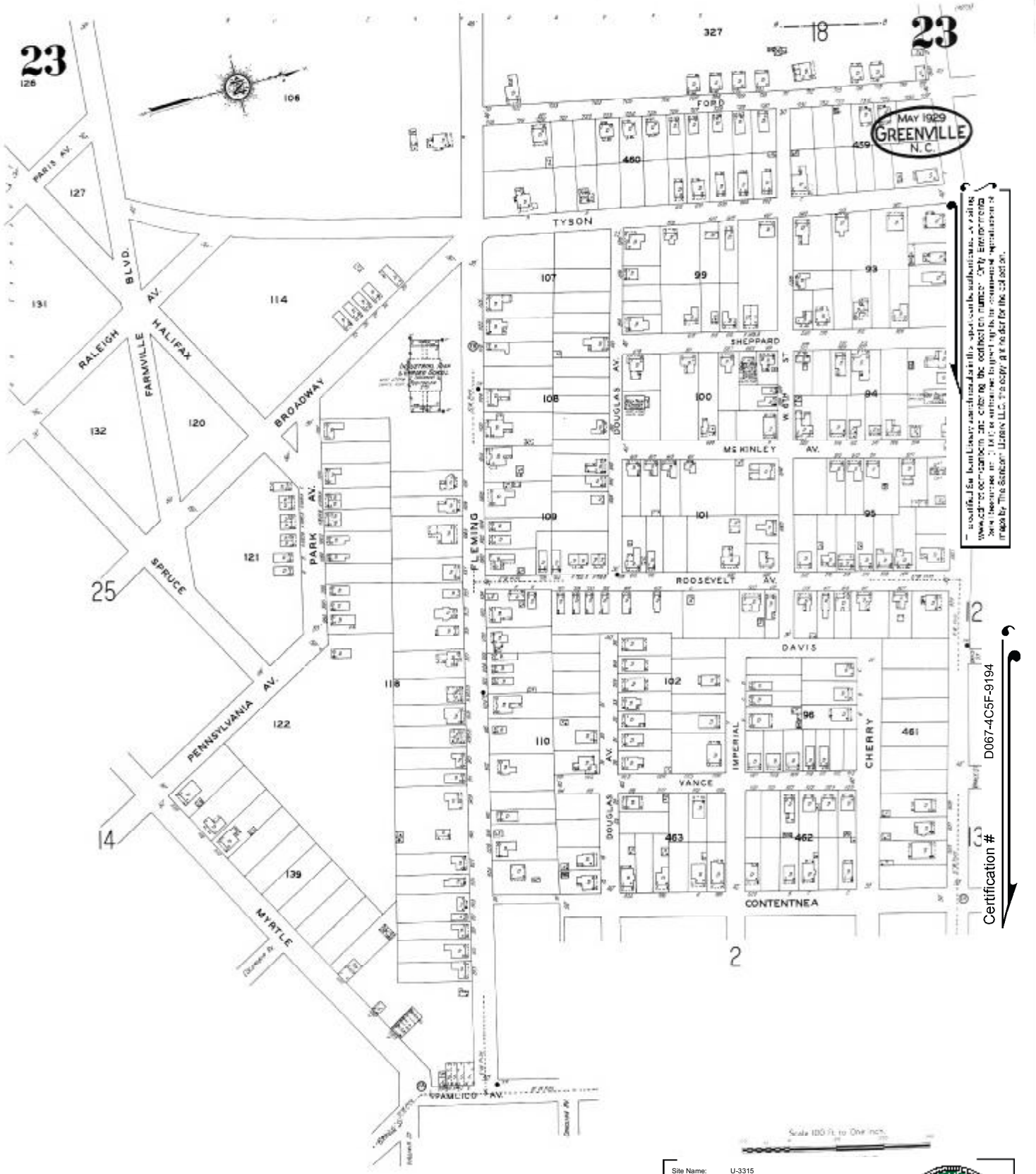
1923 Certified Sanborn Map

Certification # D067-4C5F-9194

Site Name:	U-3315
Address:	West 14th Street
City, ST, ZIP:	Greenville NC 27834
Client:	ATC Associates Inc. #45
EDR Inquiry:	3363129.3
Order Date:	7/10/2012 9:52:03 AM
Certification #	D067-4C5F-9194

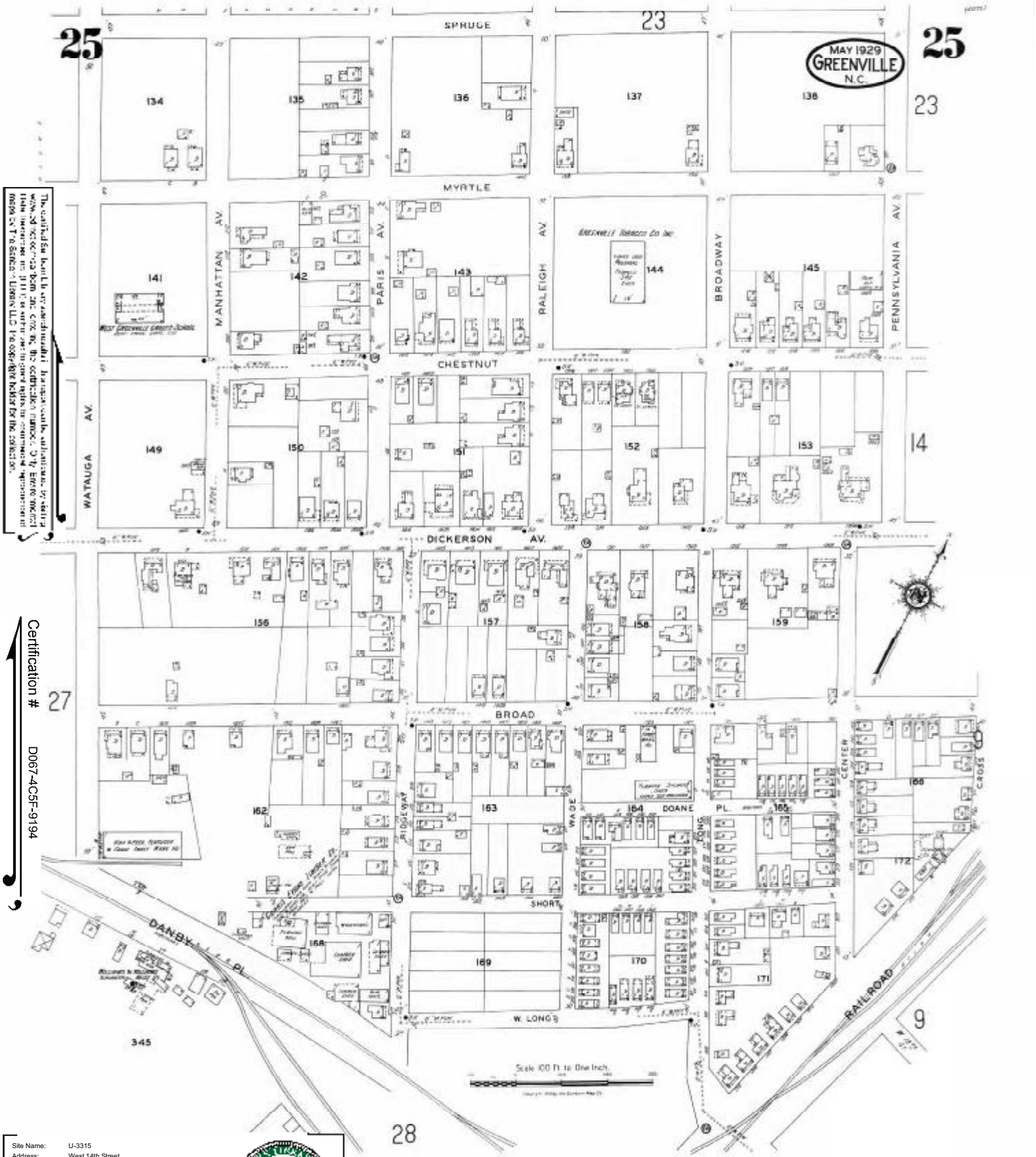
Copyright: 1923

1929 Certified Sanborn Map



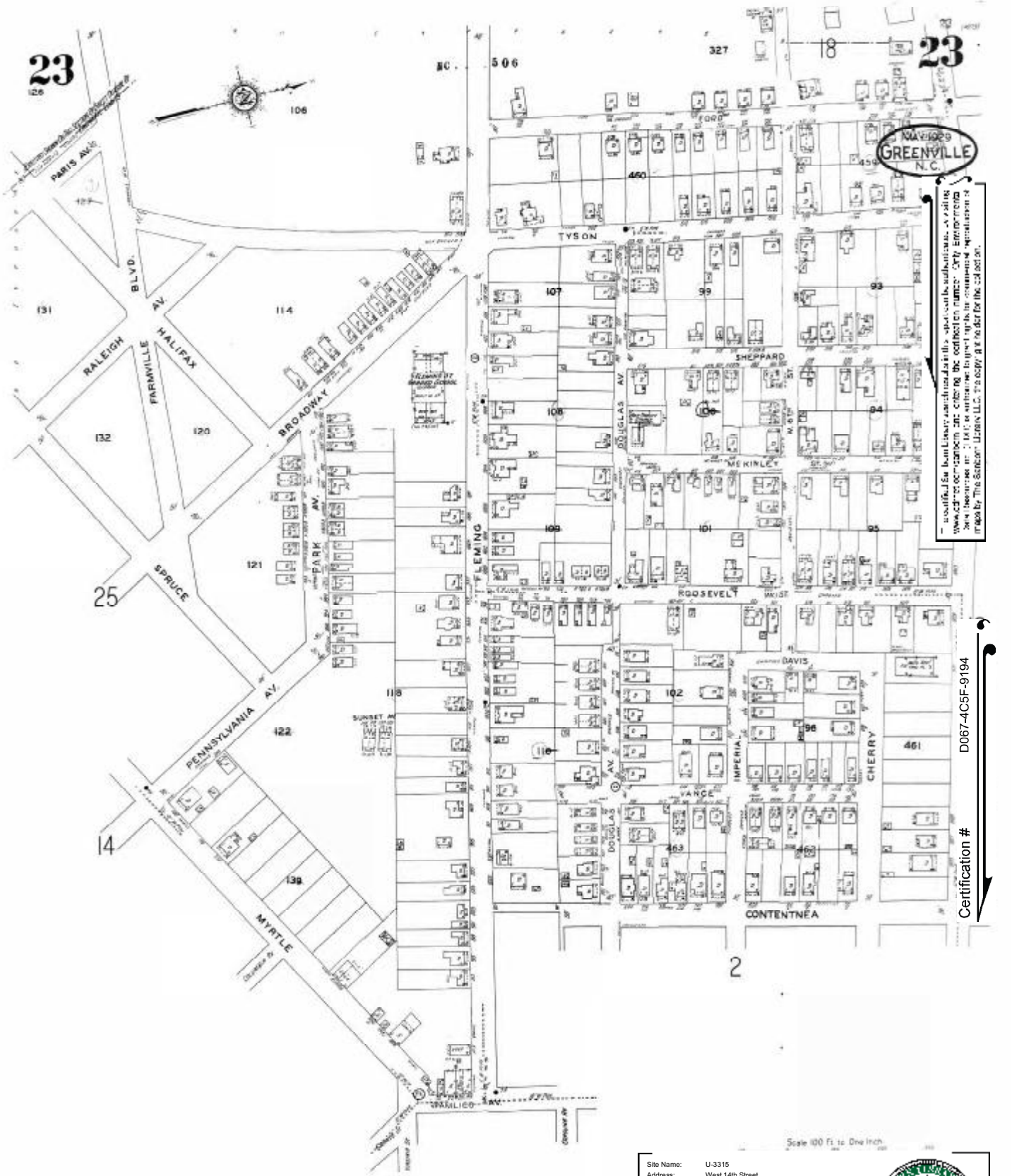
Site Name: U-3315
Address: West 14th Street
City, ST, ZIP: Greenville NC 27834
Client: ATC Associates Inc. #45
EDR Inquiry: 3363129.3
Order Date: 7/10/2012 9:52:03 AM
Certification # D067-4C5F-9194
Copyright: 1929

1929 Certified Sanborn Map



Site Name: U-3315
Address: West 14th Street
City, ST, ZIP: Greenville NC 27834
Client: ATC Associates Inc. #45
EDR Inquiry: 3363129.3
Order Date: 7/10/2012 9:52:03 AM
Certification # D067-4C5F-9194
Copyright: 1929

1946 Certified Sanborn Map



Site Name:	U-3315
Address:	West 14th Street
City, ST, ZIP:	Greenville NC 27834
Client:	ATC Associates Inc. #45
EDR Inquiry:	3363129.3
Order Date:	7/10/2012 9:52:03 AM
Certification #	D067-4C5F-9194
Copyright:	1946

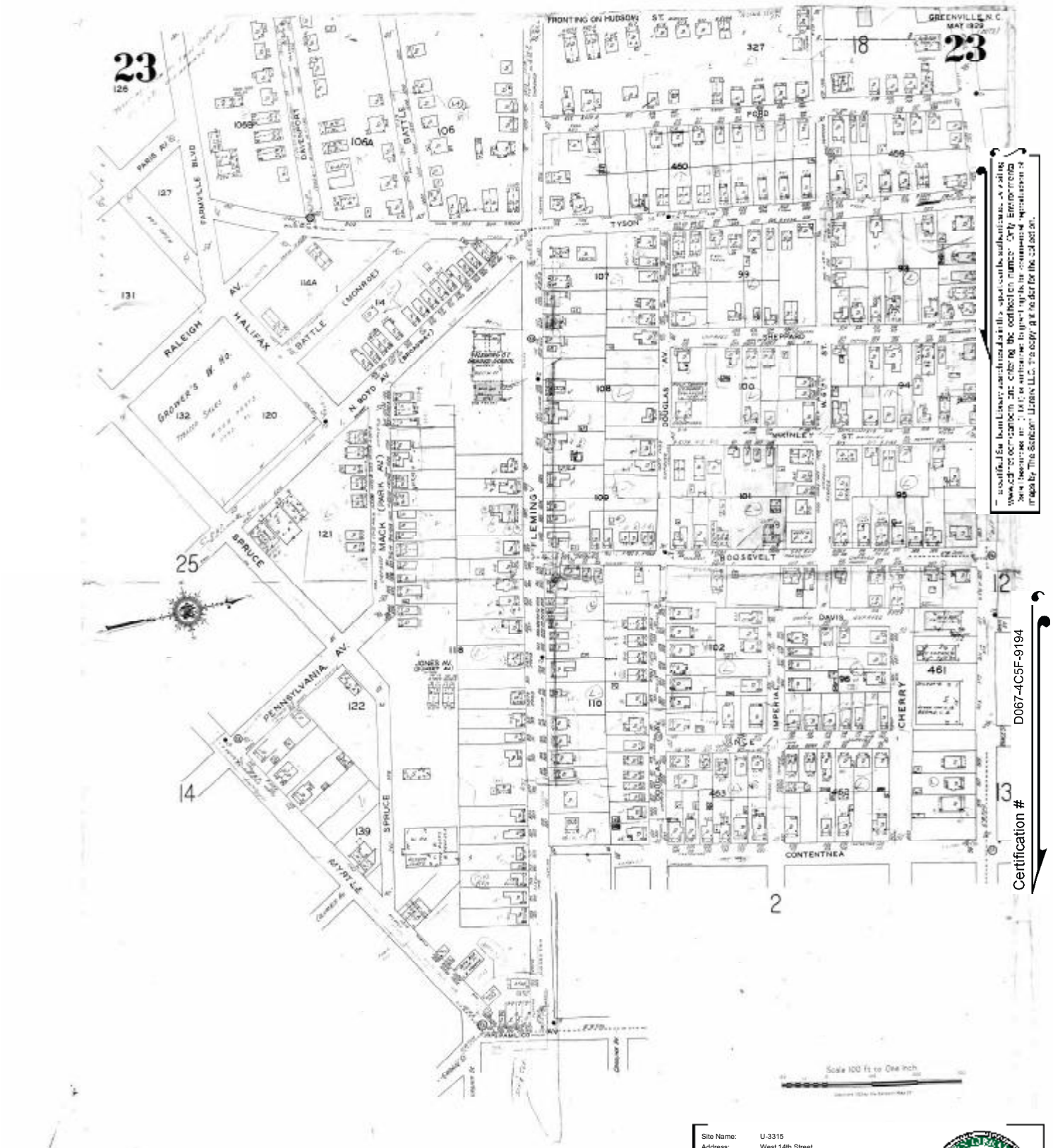
1946 Certified Sanborn Map

Certification # D067-4C5F-9194

Site Name:	U-3315
Address:	West 14th Street
City, ST, ZIP:	Greenville NC 27834
Client:	ATC Associates Inc. #45
EDR Inquiry:	3363129.3
Order Date:	7/10/2012 9:52:03 AM
Certification #	D067-4C5F-9194

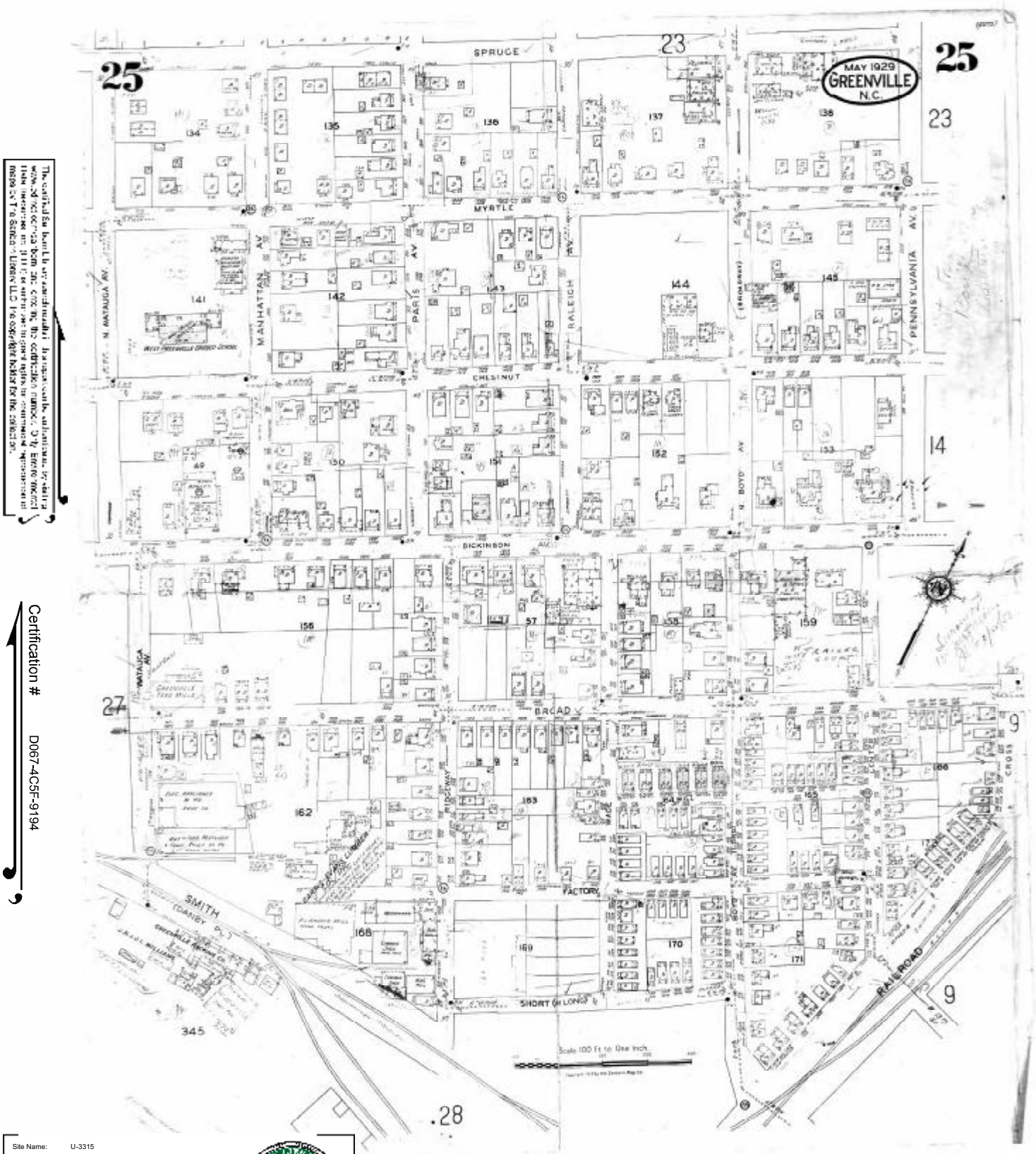
Copyright: 1946

1958 Certified Sanborn Map



Site Name:	U-3315
Address:	West 14th Street
City, ST, ZIP:	Greenville NC 27834
Client:	ATC Associates Inc. #45
EDR Inquiry:	3363129.3
Order Date:	7/10/2012 9:52:03 AM
Certification #	D067-4C5F-9194
Copyright:	1958

1958 Certified Sanborn Map



Certification # D067-4C5F-9194

Site Name: U-3315
Address: West 14th Street
City, ST, ZIP: Greenville NC 27834
Client: ATC Associates Inc. #45
EDR Inquiry: 3363129.3
Order Date: 7/10/2012 9:52:03 AM
Certification # D067-4C5F-9194

APPENDIX B

GEOPHYSICAL REPORT

SUBSURFACE INVESTIGATION REPORT

Electromagnetic Induction, Magnetic Detection *& GPR Survey*

Sutton, Jonathon Property (Parcel 171)
1308 West 14th Street
Greenville, North Carolina

July 19, 2012

Report prepared for:
Justin C. Ballard, P.G.
ATC Associates of North Carolina
2725 Millbrook Road, Suite 121
Raleigh, North Carolina 27604

Investigative Team: Shane Haniford, Joe Chiocca

Reviewed by: Bruce Beavers P.L.S. and Alex Baldwin L.S.S.

Stantec Consulting Services Inc.
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606
(919) 851-6866

ATC Associates of North Carolina
Subsurface Investigation Report
Sutton, Jonathon Property (Parcel 171)
1308 West 14th Street
Greenville, North Carolina

1.0 PURPOSE

Stantec Consulting Services Inc. performed a subsurface investigation utilizing surface Ground Penetrating Radar (GPR), Magnetic Detection and Electromagnetic Induction (EM) to survey the subject site located at 1308 West 14th Street in the city of Greenville, North Carolina and extending completely to the northern quadrant of Myrtle Street and West 14th Avenue intersection.

This site is currently a convenience store. Historically the site appeared to have operated as a industrial site. The building on the lot spans both Parcels 171 and 55

ATC Associates representative Mr. Justin C. Ballard, P.G. provided information and maps identifying the geophysical survey area to Stantec personnel prior to conducting the investigation.

Survey was conducted at the request of Justin C. Ballard, P.G. on July 18th to 19th 2012.

The purpose of this investigation was to:

- Survey for detectable structures (UST) and other subsurface anomalies.

The specified survey area was described as 1308 West 14th Street in the city of Greenville, North Carolina and extending completely to the northern quadrant of Myrtle Street and West 14th Avenue intersection.

A map depicting this area is included herein.

1.1 LIMITING CONDITIONS

In the event portions of the subject site were not accessible due to obstructions and/or stored items, those areas will be noted as inaccessible. An attempt was made to be as thorough as possible in the survey process. The surveyed area was defined, at the time of the investigation,

by the Client. Client representative on site was Aaron Leff with ATC Associates of North Carolina.

In order to accurately conduct a radar survey, linear scans were made across the target area. Confined, obstructed or non-level areas which restrict the scanning pattern can impede the data collected and reduce the accuracy of the desired results.

The assessment of this site is based on our professional evaluation of the data gathered, and our experience with the properties with surface ground penetrating radar within this setting and scope. The evaluation rendered in this report meets the standards of our profession and was conducted in accordance with generally accepted guidelines for EM, Magnetic Detection and GPR surveys. It is generally recognized that the results of the EM, Magnetic Detection and GPR are non-unique and may not represent actual subsurface conditions.

Note: A diligent effort has been made to obtain the highest quality data and make useful interpretations.

Analysis of data was accomplished by visual inspection in the field and then recording the data for post processing.

1.2 APPROACH

Multiple tools involving differing technologies were used in this investigation.

For the GPR analysis, the entire subject survey area was divided logistically into manageable/workable sections.

These isometric sections represent the arrangement of the survey scans. Within these sections, scans were made in an orthogonal pattern on two foot centers. This provided two separate data sets for each section.

For Magnetic Detection and Electromagnetic Induction the area was systematically scanned in such a pattern so to cover over 100% of the accessible portions of the site. This is possible due to the size and shape of the resulting fields produced from the sensors thus resulting in an “overlapping” of each transect covered.

2.0 METHODOLOGY

2.1 EQUIPMENT

Ground Penetrating Radar (GPR)

The GPR method transmits electromagnetic waves, which are pulsed at discrete distance/ time intervals.

The transmitted pulse radiates through the earth whereby a portion of the energy is reflected from interfaces of contrasting electrical properties (e.g. pavement and soil interface, soil stratigraphic changes and buried metallic objects) while the remaining energy continues until reaching additional reflectors where the process is repeated.

Reflected energy is received by the antennae and recorded for later processing and interpretation. Factors such as soil moisture, clay content, and variations in the dielectric constants of materials control the effectiveness of the GPR method. Wet conductive soils severely attenuate GPR signals and thus the effective depth of exploration.

The presence of foreign products leeched into the soil can eschew the data collected thereby affecting the images.

GPR energy cannot transmit through ferrous objects since metal acts as a pure reflector.

Stantec employed a MALA X3M/GPR digital radar unit with a 250 MHz center frequency, bistatic antenna to survey the site. The instrument was configured to detect moderately shallow reflectors within the geologic strata. The chosen instrument configuration facilitates the analysis. The GPR system unit was configured for data collection as follows:

- Trigger Source: Cart
- Range: 0-66 ns
- Samples per Scan: 250-512
- Sampling Frequency: 10852.27 to 7234.85 MHz
- Vertical High Pass Filter: 15 Samples
- Vertical Low Pass Filter: 5 Samples
- Point Interval: 0.669 to 0.906 in
- Pulses/Ft: 108.48

Software utilized for the collection and analysis of these data included:
RAMAC Ground Vision GPR Software version 3. 1. 19. (5).

2.2 EQUIPMENT

Electromagnetic (EM) and Magnetic Detection

The magnetic detection method is a LF (30 to 300 kHz) or VLF (below 30 kHz) receiver for detecting electromagnetic fields which radiate off of metallic objects. Magnetic locators operate on a simple principal.

An electronic transmitter and receiving antennae are mounted on a support structure. The two antennae are mounted a fixed distance apart aligned opposing so that the magnetic field measured by one sensor is negative of the magnetic field measured by the other. Each measures the average magnetic field component along their axis i.e. the magnetic field component along the longitudinal axis between the antennae.

This is calibrated in the field to a position (setting) which is neutral to the earth's natural magnetic field. When a metallic object is introduced within this field, it is detected as a differing field. This differing magnetic field is the field of interest.

Stantec employed this method of locating buried metallic objects as a compliment to GPR for the subject site.

Stantec selected the following instruments for this particular task:

- Subsurface Magnetic Locator ML-1M
- Schonstedt GA-52Cx. HeliFlux magnetic field sensors—drive frequency 7.5 KHz.
- RadioDetection 8000 T-10 model utilizing 512 hertz, 8 KHz, 33 KHz, 65 KHz, 50/60 hertz, long wave radio frequencies

3.0 DATA PROCESSING AND ANALYSIS-GPR

Stantec calculated the average radar propagation velocity for the subject sites. This procedure is necessary to provide reasonably accurate depth estimates for reflection events in the subsurface strata.

The average radar velocity for the site was estimated. It should be noted that the dielectric constants and hence the corresponding radar propagation velocities did vary by an order of degree(s) of magnitude across the surveyed area. Additionally, radar propagation velocity decreases with depth in most geologic sections.

Data processing of the GPR data prior to interpretation included band pass filtering, background removal, horizontal smoothing, trace editing, and time gain adjustments. After processing, the data profiles were reviewed for analysis. These processing techniques were applied to the GPR data to provide the highest quality data and therefore facilitate the overall interpretation process.

4.0 RESULTS & CONCLUSIONS

Stantec Consulting Services Inc. has completed a subsurface investigation of the subject site.

Multiple methods and technologies were used where permitted by the environment.

Survey scans were made throughout the targeted area.

The survey revealed anomalies within the subject site.

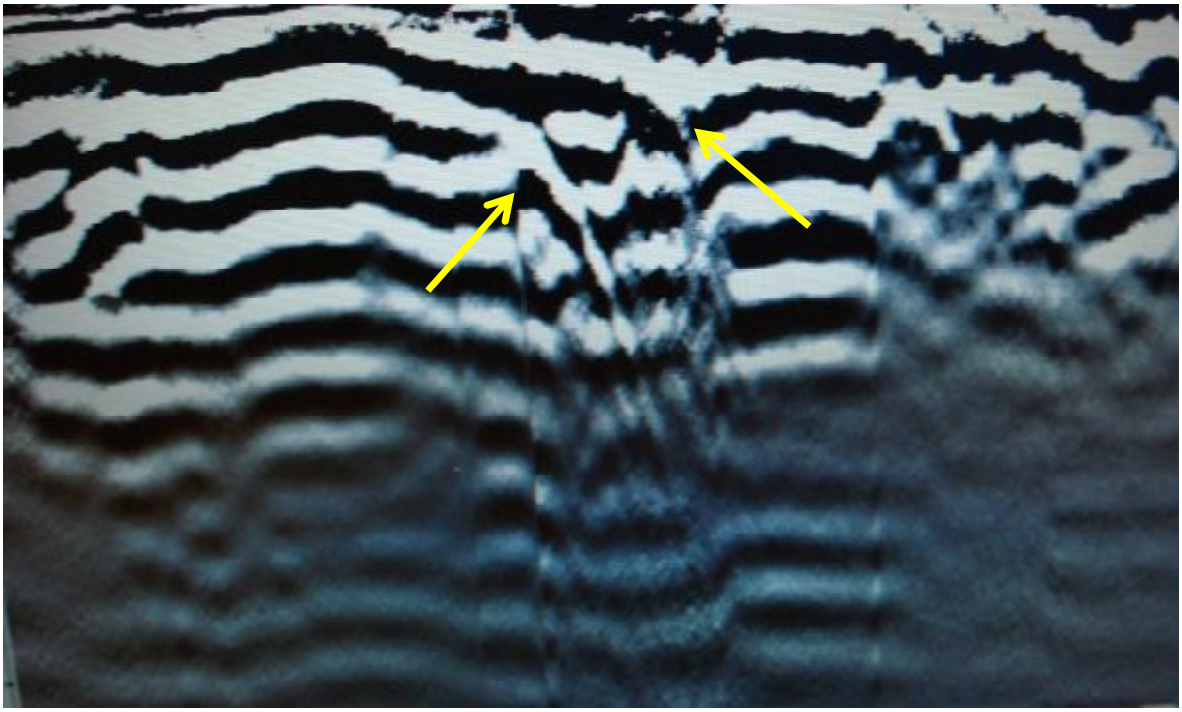
1. Two (2) parallel gas service lines were detected traveling from the meter at the face of building to the roadway on West 14th Avenue. Electromagnetic Induction was used to designate these lines with 33 kHz and long wave radio frequencies. A sketch of this area is included on page 9.

2. A water service line was discovered traveling from West 14th Avenue to the Mid-Town Grocery convenience store. Surface Ground Penetrating Radar data showed shallow anomalies delineating the path of the water service. A sketch of this area is included on page 9.

3. A sanitary line was discovered traveling from West 14th Avenue to the Mid-Town Grocery convenience store. Surface Ground Penetrating Radar data showed shallow anomalies delineating the path of the sanitary sewer line. A sketch of this area is included on page 9.

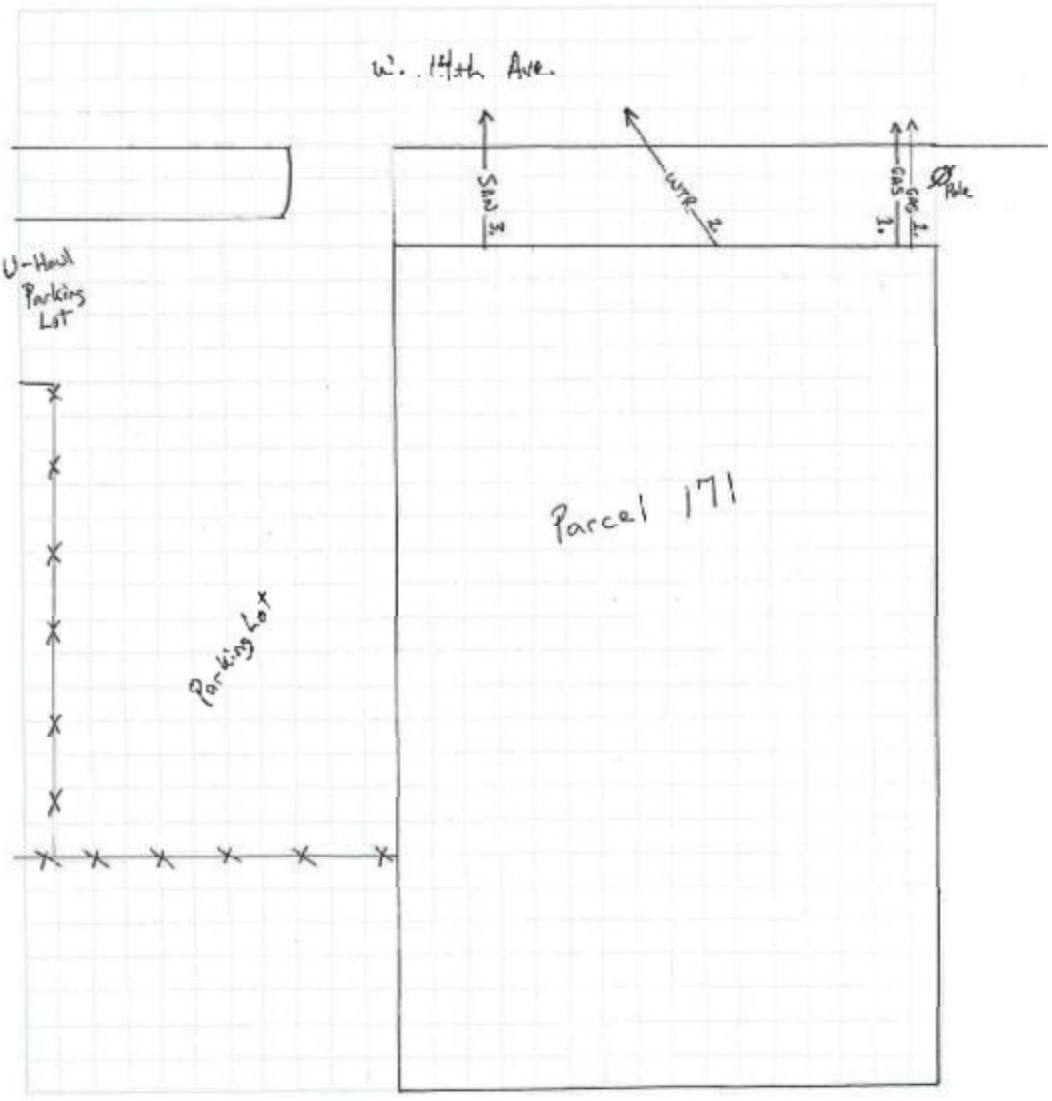
Parking lot of 1308 W 14th Avenue Mid-Town Grocery viewed from intersection of Myrtle Street and West 14th Ave

1308 W 14th Ave at front of store where utility services enter



Parallel anomalies over sanitary sewer and water pipes

Stantec



Designed by:

Checked by:

Parcel 171
Geophysical Project Map

Pitt County, NC
July 2012

Study Area

Stantec

APPENDIX C

BORING LOGS

BORING LOG: SB171-1

Client: NCDOT
Project: U-3315 Parcel 171
Greenville, Pitt County, North Carolina
WBS Element 35781.1.2

ATC Project No. 45.19873.0007

Date(s) Drilled	: 8/3/2012	Boring Diameter	: 2 Inches
Driller	: SAEDACCO	Sampling Method	: Macrocore
Drilling Method	: Direct Push	Sampling Interval	: Continuous
		Logged By	: Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0			Grass and topsoil		
1	SW		Tan and brown, silty SAND, moist	0.0	x
2					
3	CL		Tan and gray mottled, silty CLAY	0.0	
4					
5				0.0	
6	SW		Gray and tan, clayey, silty SAND, moist, bottom 2" of sampler saturated		
7				0.0	
8			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.

BORING LOG: SB171-2

Client: NCDOT
Project: U-3315 Parcel 171
Greenville, Pitt County, North Carolina
WBS Element 35781.1.2

ATC Project No. 45.19873.0007

Date(s) Drilled	: 8/3/2012	Boring Diameter	: 2.25 Inches
Driller	: SAEDACCO	Sampling Method	: Macrocore
Drilling Method	: Direct Push	Sampling Interval	: Continuous
		Logged By	: Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0			Grass and topsoil		
1	SW		Brown, silty SAND, moist	0.0	x
2					
3	SW		Gray, silty SAND, dry		
4	SW		Tan, silty SAND, dry	0.0	
5	ML		Gray and tan, clayey, sandy SILT	0.0	
6					
7	SW		Gray and tan, clayey, silty SAND, moist (sampler shoe wet at 8' bgs)	0.0	
8			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.

BORING LOG: SB171-3

Client: NCDOT
Project: U-3315 Parcel 171
Greenville, Pitt County, North Carolina
WBS Element 35781.1.2

ATC Project No. 45.19873.0007

Date(s) Drilled	: 8/3/2012	Boring Diameter	: 2.25 Inches
Driller	: SAEDACCO	Sampling Method	: Macrocore
Drilling Method	: Direct Push	Sampling Interval	: Continuous
		Logged By	: Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0			Grass and topsoil		
1	SW		Tan and brown, silty SAND, dry	0.0	x
2					
3					
4	SW		Gray and tan, silty, sandy CLAY, dry	0.0	
5					
6	SW		Gray and tan, clayey, silty SAND, moist	0.0	
7					
8	SW		Gray and tan, clayey, silty SAND,		
			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.

BORING LOG: SB171-4

Client: NCDOT
Project: U-3315 Parcel 171
Greenville, Pitt County, North Carolina
WBS Element 35781.1.2

ATC Project No. 45.19873.0007

Date(s) Drilled	: 8/3/2012	Boring Diameter	: 2.25 Inches
Driller	: SAEDACCO	Sampling Method	: Macrocore
Drilling Method	: Direct Push	Sampling Interval	: Continuous
		Logged By	: Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0			Grass and topsoil		
1	SW		Tan and brown, silty SAND, dry	0.0	x
2					
3					
4			Gray and tan, silty, sandy CLAY, dry	0.0	
5	SW			0.0	
6					
7				0.0	
8	SW		Tan, silty SAND, wet		
			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.

BORING LOG: SB171-5

Client: NCDOT
Project: U-3315 Parcel 171
Greenville, Pitt County, North Carolina
WBS Element 35781.1.2

ATC Project No. 45.19873.0007

Date(s) Drilled	: 8/3/2012	Boring Diameter	: 2.25 Inches
Driller	: SAEDACCO	Sampling Method	: Macrocore
Drilling Method	: Direct Push	Sampling Interval	: Continuous
		Logged By	: Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	CG		Asphalt and subbase		
1	SW		Light brown, clayey, silty SAND	0.0	x
2					
3	CL		Light brown and gray, sandy, silty CLAY, moist	0.0	
4					
5				0.0	
6					
7	SW		Tan, silty SAND, wet	0.0	
8			End of boring at 8' bgs		

Soil sample was collected from 2.5'-5' bgs interval.

BORING LOG: SB171-6

Client: NCDOT
Project: U-3315 Parcel 171
Greenville, Pitt County, North Carolina
WBS Element 35781.1.2

ATC Project No. 45.19873.0007

Date(s) Drilled	: 8/3/2012	Boring Diameter	: 2.25 Inches
Driller	: SAEDACCO	Sampling Method	: Macrocore
Drilling Method	: Direct Push	Sampling Interval	: Continuous
		Logged By	: Aaron Leff

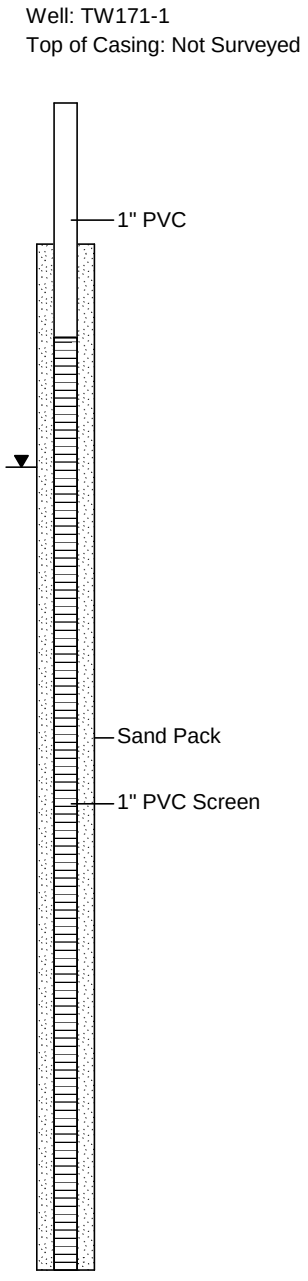
Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0			Grass and topsoil		
1	SW		Brown, silty SAND, moist	0.0	x
2					
3	CL		Gray and tan, silty, sandy CLAY	0.0	
4					
5				0.0	
6					
7	SW		Gray and tan, silty SAND, moist	0.0	
8	SW		Gray and tan, silty SAND, wet		
			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.

WELL LOG: TW171-1

Client: NCDOT Project: U-3315 Parcel 171 Greenville, Pitt County, North Carolina		Date Drilled Drilling Company Drilling Method	: 8/7/2012 : SAEDACCO : Direct-Push	Boring Diameter Sampling Method Sampling Interval	: 2.25 inches : Macrocore : Continuous
WBS Element 35784.1.1.2					
ATC Project No. 45.19873.0007				Logged By	: Aaron Leff

DEPTH	USCS	GRAPHIC	DESCRIPTION	PID (ppm)
0			Grass and sandy topsoil	
1	SW		Brown, silty SAND, dry	0.0
2				
3	CL		Soft, gray and tan, silty CLAY, moist	0.0
4				
5	ML		Tan and gray, sandy, clayey SILT	0.0
6				
7	SW		Tan, silty SAND, moist	0.0
8	SW		Tan, silty SAND, wet End of sampling at 8' bgs	
9				
10				
11				
12			Temporary well TW171-1 set at 12' bgs	



Temporary well TW171-1 set at 12 feet bgs and screened from 2-12 feet bgs.
Soil sample taken at 0-2.5 feet bgs.
Depth to water approximately 4.39 feet from top of casing (TOC).
TOC is approximately 1 foot above ground surface.

APPENDIX D

LABORATORY ANALYTICAL REPORTS

Laboratory Report of Analysis

To: Justin Ballard
ATC Associates
2725 E. Millbrook Rd
Suite 121
Raleigh, NC 27604

Report Number: **31202495**

Client Project: **NCDOT U-3315**

Dear Justin Ballard,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Michael D. Page at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Digitally signed by: Michael Page
Date: 2012.10.03 15:48:36 -04'00'

Michael D. Page — Date
Project Manager
michael.page@sgs.com

Print Date: 08/20/2012 N.C. Certification # 481

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SB171-1 (0-2.5)	31202495021	08/03/2012 07:30	08/06/2012 15:30	Soil-Solid as dry weight
SB171-2 (0-2.5)	31202495022	08/03/2012 07:50	08/06/2012 15:30	Soil-Solid as dry weight
SB171-3 (0-2.5)	31202495023	08/03/2012 08:10	08/06/2012 15:30	Soil-Solid as dry weight
SB171-4 (0-2.5)	31202495024	08/03/2012 09:00	08/06/2012 15:30	Soil-Solid as dry weight
SB171-5 (0-2.5)	31202495025	08/03/2012 09:20	08/06/2012 15:30	Soil-Solid as dry weight
SB171-6 (0-2.5)	31202495026	08/03/2012 09:40	08/06/2012 15:30	Soil-Solid as dry weight

Results of **SB171-1 (0-2.5)**

Client Sample ID: **SB171-1 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495021-A
Lab Project ID: 31202495

Collection Date: 08/03/2012 07:30
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 88.30

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.63	mg/kg	1	08/8/2012 15:25
Surrogates						
4-Bromofluorobenzene	108		70.0-130	%	1	08/8/2012 15:25

Batch Information

Analytical Batch: **VGC2056**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/08/2012 15:25**

Prep Batch: **VXX3782**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/07/2012 11:44**
Prep Initial Wt./Vol.: **6.233 g**
Prep Extract Vol: **5 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-1 (0-2.5)**

Client Sample ID: **SB171-1 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495021-C
Lab Project ID: 31202495

Collection Date: 08/03/2012 07:30
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 88.30

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**6.98**		6.50	mg/kg	1	08/14/2012 16:38
Surrogates						
o-Terphenyl	89.1		40.0-140	%	1	08/14/2012 16:38

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/14/2012 16:38**

Prep Batch: **XXX2915**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 10:07**
Prep Initial Wt./Vol.: **34.85 g**
Prep Extract Vol: **10 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-2 (0-2.5)**

Client Sample ID: **SB171-2 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495022-A
Lab Project ID: 31202495

Collection Date: 08/03/2012 07:50
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 90.20

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.63	mg/kg	1	08/8/2012 15:50
Surrogates						
4-Bromofluorobenzene	108		70.0-130	%	1	08/8/2012 15:50

Batch Information

Analytical Batch: **VGC2056**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/08/2012 15:50**

Prep Batch: **VXX3782**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/07/2012 11:45**
Prep Initial Wt./Vol.: **6.111 g**
Prep Extract Vol: **5 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-2 (0-2.5)**

Client Sample ID: **SB171-2 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495022-C
Lab Project ID: 31202495

Collection Date: 08/03/2012 07:50
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 90.20

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**20.7**		7.25	mg/kg	1	08/14/2012 17:07
Surrogates						
o-Terphenyl	95.8		40.0-140	%	1	08/14/2012 17:07

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/14/2012 17:07**

Prep Batch: **XXX2915**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 10:07**
Prep Initial Wt./Vol.: **30.57 g**
Prep Extract Vol: **10 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-3 (0-2.5)**

Client Sample ID: **SB171-3 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495023-A
Lab Project ID: 31202495

Collection Date: 08/03/2012 08:10
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 91.60

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.63	mg/kg	1	08/8/2012 16:15
Surrogates						
4-Bromofluorobenzene	108		70.0-130	%	1	08/8/2012 16:15

Batch Information

Analytical Batch: **VGC2056**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/08/2012 16:15**

Prep Batch: **VXX3782**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/07/2012 11:46**
Prep Initial Wt./Vol.: **6.012 g**
Prep Extract Vol: **5 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-3 (0-2.5)**

Client Sample ID: **SB171-3 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495023-C
Lab Project ID: 31202495

Collection Date: 08/03/2012 08:10
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 91.60

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**17.2**		6.73	mg/kg	1	08/14/2012 17:35
Surrogates						
o-Terphenyl	96.2		40.0-140	%	1	08/14/2012 17:35

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/14/2012 17:35**

Prep Batch: **XXX2915**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 10:07**
Prep Initial Wt./Vol.: **32.45 g**
Prep Extract Vol: **10 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-4 (0-2.5)**

Client Sample ID: **SB171-4 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495024-A
Lab Project ID: 31202495

Collection Date: 08/03/2012 09:00
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 96.00

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.88	mg/kg	1	08/15/2012 17:33
Surrogates						
4-Bromofluorobenzene	109		70.0-130	%	1	08/15/2012 17:33

Batch Information

Analytical Batch: **VGC2069**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/15/2012 17:33**

Prep Batch: **VXX3829**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/07/2012 11:46**
Prep Initial Wt./Vol.: **5.364 g**
Prep Extract Vol: **5 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-4 (0-2.5)**

Client Sample ID: **SB171-4 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495024-C
Lab Project ID: 31202495

Collection Date: 08/03/2012 09:00
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 96.00

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**14.6**		6.94	mg/kg	1	08/14/2012 18:03
Surrogates						
o-Terphenyl	99.4		40.0-140	%	1	08/14/2012 18:03

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/14/2012 18:03**

Prep Batch: **XXX2915**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 10:07**
Prep Initial Wt./Vol.: **30.03 g**
Prep Extract Vol: **10 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-5 (0-2.5)**

Client Sample ID: **SB171-5 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495025-A
Lab Project ID: 31202495

Collection Date: 08/03/2012 09:20
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 87.00

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.46	mg/kg	1	08/15/2012 17:58
Surrogates						
4-Bromofluorobenzene	109		70.0-130	%	1	08/15/2012 17:58

Batch Information

Analytical Batch: **VGC2069**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/15/2012 17:58**

Prep Batch: **VXX3829**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/07/2012 11:49**
Prep Initial Wt./Vol.: **6.635 g**
Prep Extract Vol: **5 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-5 (0-2.5)**

Client Sample ID: **SB171-5 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495025-C
Lab Project ID: 31202495

Collection Date: 08/03/2012 09:20
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 87.00

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**38.6**		7.42	mg/kg	1	08/14/2012 18:32
Surrogates						
o-Terphenyl	98.8		40.0-140	%	1	08/14/2012 18:32

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/14/2012 18:32**

Prep Batch: **XXX2915**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 10:07**
Prep Initial Wt./Vol.: **31 g**
Prep Extract Vol: **10 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-6 (0-2.5)**

Client Sample ID: **SB171-6 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495026-A
Lab Project ID: 31202495

Collection Date: 08/03/2012 09:40
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 87.30

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.57	mg/kg	1	08/15/2012 18:24
Surrogates						
4-Bromofluorobenzene	109		70.0-130	%	1	08/15/2012 18:24

Batch Information

Analytical Batch: **VGC2069**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/15/2012 18:24**

Prep Batch: **VXX3829**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/07/2012 11:50**
Prep Initial Wt./Vol.: **6.415 g**
Prep Extract Vol: **5 mL**

Print Date: 08/20/2012

N.C. Certification # 481

Results of **SB171-6 (0-2.5)**

Client Sample ID: **SB171-6 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202495026-C
Lab Project ID: 31202495

Collection Date: 08/03/2012 09:40
Received Date: 08/06/2012 15:30
Matrix: Soil-Solid as dry weight
Solids (%): 87.30

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**17.8**		7.34	mg/kg	1	08/14/2012 19:00
Surrogates						
o-Terphenyl	90.5		40.0-140	%	1	08/14/2012 19:00

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/14/2012 19:00**

Prep Batch: **XXX2915**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 10:07**
Prep Initial Wt./Vol.: **31.19 g**
Prep Extract Vol: **10 mL**

Print Date: 08/20/2012

N.C. Certification # 481

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

104638

(1)
CLIENT: ATC ASSOCIATES
CONTACT: JUSTIN BALLARD PHONE NO:(919 871-0999
PROJECT: NCDOT U-3715 SITE/PWSID#: ~~U-3715~~ 35781.2
REPORTS TO:
JUSTIN BALLARD FAX NO.:(919) 871-0335
INVOICE TO: NCDOT QUOTE #:
P.O. NUMBER:

SGS Reference: 320295 PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) GRO	DRO	8260 no 8/7/12	8270	REMARKS
	TW172-1 (6-8)	8/1/12	1045	S	7	G		X	X	X		
	TW173-1 (6-8)		1125	S	3			X	X			
	TW170-1 (6-8)		0930	S	7			X	X	X		
	TW49-1 (2.5-5)		0735	S	8			X	X	X	X	
	TW174-1 (6-8)		1255	S	3			X	X			
	TW49-1		1430	GW	5					X	X	
	TW170-1		1445	GW	3					X		
	TW172-1		1500	GW	3					X		
	TW173-1		1515	GW	3					X		
	TW174-1		1530	GW	3					X		

(5)

	Date	Time	
Collected/Relinquished By:(1)	8/6/12	1030	Received By:
Relinquished By: (2)	8/6/12	1230	Received By:
Relinquished By: (3)	8/6/12	1530	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)
Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: 0.7 . 4.2
Special Deliverable Requirements:
Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ Date Needed ☑ STD

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

104618

(1)

CLIENT: ATC Associates

CONTACT: Justin Ballard PHONE NO:(919) 871-0999

PROJECT: NCDOT U3315 SITE/PWSID#: 35781.1.2

REPORTS TO:

Justin Ballard FAX NO.:(919) 871-0335

INVOICE TO: NCDOT QUOTE #:

P.O. NUMBER:

SGS Reference: 31202495

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) GRO	DRO	REMARKS
	SB173-1 (6-8)	8/2/12	0715	S	3	G		X	X	
	SB173-5 (2.5-5.0)		0745							
	SB173-6 (6-8)		0805							
	SB173-7 (6-8)		0905							
	SB174-2 (0-2.5)		1020							
	SB174-1 (5-6)		1040							
	SB174-3 (6-8)		1110							
	SB174-4 (5-6)		1140							
	SB174-5 (0-2.5)		1300							
	SB174-6 (5-6)		1450							

(5)

Collected/Relinquished By:(1)	Date 8/6/12	Time 1080	Received By:
Relinquished By: (2)	Date 8/6/12	Time 1200	Received By:
Relinquished By: (3)	Date 8/6/12	Time 1530	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 0.7 . 4.2

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- Maryland
- New York
- Ohio

www.us.sgs.com

104619

(1)

CLIENT: ATC ASSOCIATES

CONTACT: JUSTIN BALLARD PHONE NO:(919) 871-0999

PROJECT: NDOT U-3315 SITE/PWSID#: 35781.1.2

REPORTS TO: JUSTIN BALLARD FAX NO.:(919) 871-0375

INVOICE TO: NCDOT QUOTE #:

P.O. NUMBER:

SGS Reference: 3120295

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) GRO	DRO	REMARKS
	SB171-1 (0-2.5)	8/3/12	0730	S	3	G		X	X	
	SB171-2 (0-2.5)	"	0750	"	"	"		"	"	
	SB171-3 (0-2.5)	"	0810	"	"	"		"	"	
	SB171-4 (0-2.5)	"	0900	"	"	"		"	"	
	SB171-5 (0-2.5)	"	0920	"	"	"		"	"	
	SB171-6 (0-2.5)	"	0940	"	"	"		"	"	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
	8/6/12	1030	
Relinquished By: (2)	Date	Time	Received By:
	8/6/12	1200	
Relinquished By: (3)	Date	Time	Received By:
	8/6/12	1530	
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 0.7 4.2

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-ATC** Work Order No.: **31202495**

1. ___ Shipped
   X Hand Delivered
   Notes:

2. X COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   X No Custody Tape

4. X Samples Intact
   ___ Samples Broken / Leaking

5. X Chilled on Receipt Actual Temp.(s) in °C: 0.7, 4.2
   ___ Ambient on Receipt
   X Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. X Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)

8. X Received Within Holding Time
   ___ Not Received Within Holding Time

9. ___ No Discrepancies Noted
   X Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. X No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Comments: Received two MEOH vials with no sample id or label.

Did not received vials for TW172-1 (6-8), only one 4oz amber jar.

Inspected and Logged in by: JJ

Date: Mon-8/6/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6

Laboratory Report of Analysis

To: Justin Ballard
ATC Associates
2725 E. Millbrook Rd
Suite 121
Raleigh, NC 27604

Report Number: **31202558**

Client Project: **NCDOT U-3315**

Dear Justin Ballard,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Michael D. Page at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Digitally signed by: Michael Page
Date: 2012.10.03 15:57:53 -04'00'

Michael D. Page — Date
Project Manager
michael.page@sgs.com

Print Date: 08/23/2012 N.C. Certification # 481

ANALYTICAL PERSPECTIVES IS NOW PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
TW171-1 (0-2.5)	31202558010	08/06/2012 12:50	08/10/2012 15:45	Soil-Solid as dry weight
TW171-1	31202558023	08/09/2012 09:30	08/10/2012 15:45	Water

SGS Analytical Perspectives | 5500 Business Dr. US - 28405 - Wilmington, NC t +1 910 350 1903 f +1 910 350 1557 www.sgs.com
Member of the SGS Group (SGS SA)

Results of **TW171-1 (0-2.5)**

Client Sample ID: **TW171-1 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202558010-A
Lab Project ID: 31202558

Collection Date: 08/06/2012 12:50
Received Date: 08/10/2012 15:45
Matrix: Soil-Solid as dry weight
Solids (%): 82.80

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND		3.42	mg/kg	1	08/16/2012 19:00
Surrogates						
4-Bromofluorobenzene	108		70.0-130	%	1	08/16/2012 19:00

Batch Information

Analytical Batch: **VGC2073**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **08/16/2012 19:00**

Prep Batch: **VXX3837**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/13/2012 09:33**
Prep Initial Wt./Vol.: **7.06 g**
Prep Extract Vol: **5 mL**

Print Date: 08/23/2012

N.C. Certification # 481

Results of **TW171-1 (0-2.5)**

Client Sample ID: **TW171-1 (0-2.5)**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202558010-C
Lab Project ID: 31202558

Collection Date: 08/06/2012 12:50
Received Date: 08/10/2012 15:45
Matrix: Soil-Solid as dry weight
Solids (%): 82.80

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**14.9**		7.72	mg/kg	1	08/15/2012 4:54
Surrogates						
o-Terphenyl	81.1		40.0-140	%	1	08/15/2012 4:54

Batch Information

Analytical Batch: **XGC2444**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **08/15/2012 04:54**

Prep Batch: **XXX2919**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/13/2012 17:19**
Prep Initial Wt./Vol.: **31.28 g**
Prep Extract Vol: **10 mL**

Print Date: 08/23/2012

N.C. Certification # 481

Results of **TW171-1**

Client Sample ID: **TW171-1**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202558023-A
Lab Project ID: 31202558

Collection Date: 08/09/2012 09:30
Received Date: 08/10/2012 15:45
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,1,1-Trichloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,1,2,2-Tetrachloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,1,2-Trichloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,1-Dichloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,1-Dichloroethene	ND		1.00	ug/L	1	08/13/2012 13:57
1,1-Dichloropropene	ND		1.00	ug/L	1	08/13/2012 13:57
1,2,3-Trichlorobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
1,2,3-Trichloropropane	ND		1.00	ug/L	1	08/13/2012 13:57
1,2,4-Trichlorobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
1,2,4-Trimethylbenzene	ND		1.00	ug/L	1	08/13/2012 13:57
1,2-Dibromo-3-chloropropane	ND		5.00	ug/L	1	08/13/2012 13:57
1,2-Dibromoethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,2-Dichlorobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
1,2-Dichloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
1,2-Dichloropropane	ND		1.00	ug/L	1	08/13/2012 13:57
1,3,5-Trimethylbenzene	ND		1.00	ug/L	1	08/13/2012 13:57
1,3-Dichlorobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
1,3-Dichloropropane	ND		1.00	ug/L	1	08/13/2012 13:57
1,4-Dichlorobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
2,2-Dichloropropane	ND		1.00	ug/L	1	08/13/2012 13:57
2-Butanone	ND		25.0	ug/L	1	08/13/2012 13:57
2-Chlorotoluene	ND		1.00	ug/L	1	08/13/2012 13:57
2-Hexanone	ND		5.00	ug/L	1	08/13/2012 13:57
4-Chlorotoluene	ND		1.00	ug/L	1	08/13/2012 13:57
4-Isopropyltoluene	ND		1.00	ug/L	1	08/13/2012 13:57
4-Methyl-2-pentanone	ND		5.00	ug/L	1	08/13/2012 13:57
Acetone	ND		25.0	ug/L	1	08/13/2012 13:57
Benzene	ND		1.00	ug/L	1	08/13/2012 13:57
Bromobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
Bromochloromethane	ND		1.00	ug/L	1	08/13/2012 13:57
Bromodichloromethane	ND		1.00	ug/L	1	08/13/2012 13:57
Bromoform	ND		1.00	ug/L	1	08/13/2012 13:57
Bromomethane	ND		1.00	ug/L	1	08/13/2012 13:57
n-Butylbenzene	ND		1.00	ug/L	1	08/13/2012 13:57
Carbon disulfide	ND		1.00	ug/L	1	08/13/2012 13:57
Carbon tetrachloride	ND		1.00	ug/L	1	08/13/2012 13:57
Chlorobenzene	ND		1.00	ug/L	1	08/13/2012 13:57
Chloroethane	ND		1.00	ug/L	1	08/13/2012 13:57
Chloroform	ND		1.00	ug/L	1	08/13/2012 13:57
Chloromethane	**1.00**		1.00	ug/L	1	08/13/2012 13:57
Dibromochloromethane	ND		1.00	ug/L	1	08/13/2012 13:57
Dibromomethane	ND		1.00	ug/L	1	08/13/2012 13:57
Dichlorodifluoromethane	ND		5.00	ug/L	1	08/13/2012 13:57

Print Date: 08/23/2012

N.C. Certification # 481

Results of **TW171-1**

Client Sample ID: **TW171-1**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202558023-A
Lab Project ID: 31202558

Collection Date: 08/09/2012 09:30
Received Date: 08/10/2012 15:45
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
cis-1,3-Dichloropropene	ND		1.00	ug/L	1	08/13/2012 13:57
trans-1,3-Dichloropropene	ND		1.00	ug/L	1	08/13/2012 13:57
Diisopropyl Ether	ND		1.00	ug/L	1	08/13/2012 13:57
Ethyl Benzene	ND		1.00	ug/L	1	08/13/2012 13:57
Hexachlorobutadiene	ND		1.00	ug/L	1	08/13/2012 13:57
Isopropylbenzene (Cumene)	ND		1.00	ug/L	1	08/13/2012 13:57
Methyl iodide	ND		1.00	ug/L	1	08/13/2012 13:57
Methylene chloride	ND		5.00	ug/L	1	08/13/2012 13:57
Naphthalene	ND		1.00	ug/L	1	08/13/2012 13:57
Styrene	ND		1.00	ug/L	1	08/13/2012 13:57
Tetrachloroethene	ND		1.00	ug/L	1	08/13/2012 13:57
Toluene	ND		1.00	ug/L	1	08/13/2012 13:57
Trichloroethene	ND		1.00	ug/L	1	08/13/2012 13:57
Trichlorofluoromethane	ND		1.00	ug/L	1	08/13/2012 13:57
Vinyl chloride	ND		1.00	ug/L	1	08/13/2012 13:57
Xylene (total)	ND		2.00	ug/L	1	08/13/2012 13:57
cis-1,2-Dichloroethene	ND		1.00	ug/L	1	08/13/2012 13:57
m,p-Xylene	ND		2.00	ug/L	1	08/13/2012 13:57
n-Propylbenzene	ND		1.00	ug/L	1	08/13/2012 13:57
o-Xylene	ND		1.00	ug/L	1	08/13/2012 13:57
sec-Butylbenzene	ND		1.00	ug/L	1	08/13/2012 13:57
tert-Butyl methyl ether (MTBE)	ND		1.00	ug/L	1	08/13/2012 13:57
tert-Butylbenzene	ND		1.00	ug/L	1	08/13/2012 13:57
trans-1,2-Dichloroethene	ND		1.00	ug/L	1	08/13/2012 13:57
trans-1,4-Dichloro-2-butene	ND		5.00	ug/L	1	08/13/2012 13:57
Surrogates						
1,2-Dichloroethane-d4	104		64.0-140	%	1	08/13/2012 13:57
4-Bromofluorobenzene	104		85.0-115	%	1	08/13/2012 13:57
Toluene d8	108		82.0-117	%	1	08/13/2012 13:57

Batch Information

Analytical Batch: **VMS2470**
Analytical Method: **SW-846 8260B**
Instrument: **MSD3**
Analyst: **BWS**
Analytical Date/Time: **08/13/2012 13:57**

Prep Batch: **VXX3811**
Prep Method: **SW-846 5030B**
Prep Date/Time: **08/13/2012 10:02**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 08/23/2012

N.C. Certification # 481

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

104637

(1)

CLIENT: ATC ASSOCIATES

CONTACT: JUSTIN BALLARD PHONE NO:(919) 871-0999

PROJECT: NCDOT U-3315 SITE/PWSID# :

REPORTS TO:

JUSTIN BALLARD FAX NO.:(919 871-0735

INVOICE TO: NCDOT QUOTE #:

P.O. NUMBER:

SGS Reference: 31202558

PAGE 1 OF 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) DRO	GRO	8260	8270	REMARKS
1	SB55-7 (0-2.5)	8/1/12	0845	Soil	3	G		X	X			
2	SB55-1 (0-2.5)	8/7/12	0740									
3	SB55-2 (0-2.5)	8/7/12	0730									
4	SB55-3 (0-2.5)	8/7/12	0705									
5	SB55-4 (0-2.5)	8/6/12	1430									
6	SB55-5 (0-2.5)	8/6/12	1500									
7	SB55-6 (0-2.5)	8/7/12	0830									
8	SB55-8 (0-2.5)	8/7/12	0910									
9	TW55-1 (0-2.5)	8/6/12	1520									
10	TW171-1 (0-2.5)	8/6/12	1250									

(5)

	Date	Time	
Collected/Relinquished By:(1)	8/9/12 8/10/12	12:45	Received By:
Relinquished By: (2)	8/10/12	13:20	Received By:
Relinquished By: (3)	8/10/12	1545	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 1.9 0.7

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN (ABSENT)

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

104636

(1)

CLIENT: ATC ASSOCIATES

CONTACT: JUSTIN BALLARD PHONE NO:(919) 871-0999

PROJECT: NCDOT U-3315 SITE/PWSID#:

REPORTS TO: JUSTIN BALLARD FAX NO.:(919) 871-0335

INVOICE TO: NCDOT QUOTE #:

P.O. NUMBER:

SGS Reference: 31202558

PAGE 2 OF 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used	Analysis Required (3) DRO	GRO	8260	8270	REMARKS
11	TW50-1 (5-6)	8/7/12	1410	SOIL	8	G		X	X	X	X	
12	TW51-1 (0-2.5)	8/7/12	1315	↓	↓	↓		↓	↓	↓	↓	
13	SB50-1 (0-2.5)	8/7/12	1545	↓	↓	↓		↓	↓	↓	↓	
14	SB50-3 (2.5-5)	8/8/12	1400	X	X	X		X	X	X	X	
15	SB50-9 (0-2.5)	8/8/12	1415	X	3	X		X	X			
16	SB50-6 (2.5-5.0)	8/8/12	1420	X	3	X		X	X			
17	SB50-8 (2.5-5.0)	8/8/12	1430	X	3	X		X	X			
18	SB50-10 (2.5-5.0)	8/8/12	1440	X	3	X		X	X			
19	SB50-4 (2.5-5.0)	8/8/12	1445	X	8	X		X	X	X	X	
20	SB-50-7 (2.5-5.0)	8/8/12	1455	X	8	X		X	X	X	X	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
	8/9/12	1245	
Relinquished By: (2)	Date	Time	Received By:
	8/10/12	1320	
Relinquished By: (3)	Date	Time	Received By:
	8/11/12	1545	
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 1.7 1.9 0.7 8/10/12

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

104650

(1)

CLIENT: ATC

CONTACT: JUSTIN BALLARD PHONE NO:(919 871 6999

PROJECT: SITE/PWSID# :

REPORTS TO: JUSTIN BALLARD FAX NO.:( )

INVOICE TO: NCDOT QUOTE #:

P.O. NUMBER:

SGS Reference: 31202558

PAGE 3 OF 4

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used	Analysis Required (3) 8260	8270	REMARKS
21	TW50-1	8/9	0810	W	4	G		X	X	
22	TW51-1	8/9	0835	W	4	G		X	X	
23	TW171-1	8/9	0930	W	3	G		X		
24	TW55-1	8/9	1000	W	3	G		X		
25	TW172-1(6-8)	8/1	1045	S	3	G		X		

q.s.

(5)

	Date	Time	
Collected/Relinquished By:(1)	8/9	4:00	Received By: 8/10/12 0949/12 1245
Relinquished By: (2)	8/10/12	1320	Received By:
Relinquished By: (3)	8/10/12	1545	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 1.9 0.7

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

104649

(1)
CLIENT: ATC
CONTACT: JUSTIN BALLARD PHONE NO:(919) 871 0999
PROJECT: NCDOT 3315 SITE/PWSID# :
REPORTS TO: JUSTIN BALLARD FAX NO.:(919) 871 0335
INVOICE TO: NCDOT QUOTE #:
P.O. NUMBER:

SGS Reference: 31202558 PAGE 4 OF 4

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) D20	G20	5260	5270						REMARKS
26	SB50-7 (2.5-5.0)	8/8/12	1515	S	3	G		X	X								
27	SB50-11 (2.5-5.0)	8/8/12	1525	S	3	G		X	X								
28	SB50-5 (0-2.5)	8/8/12	1525	S	3	G		X	X								
29	SB51-1 (0-2.5)	8/8/12	1600	S	8	G		X	X	X	X						
30	SB51-4 (0-2.5)	8/8/12	1630	S	~~3~~	G		X	X								
31	SB50-12 (2.5-5)	8/8	1650	S	3	G		X	X								
32	SB51-2 (0-2.5)	8/8	1700	S	8	G		X	X	X	X						
33	SB50-13 (0-2.5)	8/8	1750	S	3	G		X	X								
~~2434~~	SB50-14 (0-2.5)	8/8	1800	S	3	G		X	X								
35	SB51-3 (0-2.5)	8/8	1830	S	3	G		X	X								

(5)

	Date	Time	
Collected/Relinquished By:(1)	8/8	1245	Received By: 8/10/12
Relinquished By: (2)	8/10/12	1320	Received By:
Relinquished By: (3)	8/10/12	1545	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: 1.9 1.7
Special Deliverable Requirements:
Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ Date Needed ☑ STD

☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-ATC** Work Order No.: **31202558**

1. ___ Shipped
   X Hand Delivered
   Notes: SGS Courier
2. X COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms
3. ___ Custody Tape on Container
   X No Custody Tape
4. X Samples Intact
   ___ Samples Broken / Leaking
5. X Chilled on Receipt Actual Temp.(s) in °C: 1.9, 0.7
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications
6. X Sufficient Sample Submitted
   ___ Insufficient Sample Submitted
7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)
8. X Received Within Holding Time
   ___ Not Received Within Holding Time
9. X No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*
10. X No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Comments:

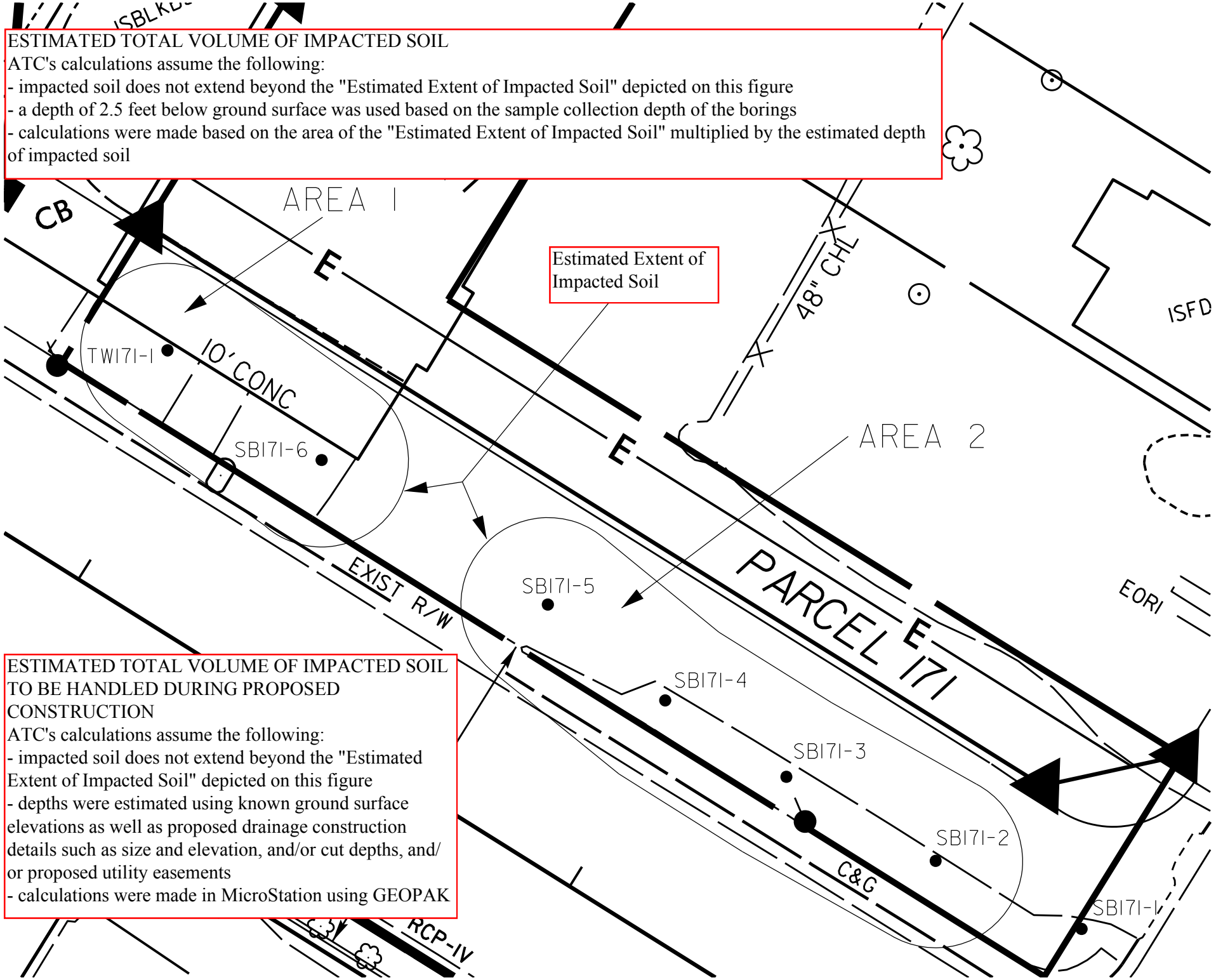
Inspected and Logged in by: JMM

Date: Fri-8/10/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6

APPENDIX E

VOLUMETRIC CALCULATIONS


ESTIMATED TOTAL VOLUME OF IMPACTED SOIL
ATC's calculations assume the following:
- impacted soil does not extend beyond the "Estimated Extent of Impacted Soil" depicted on this figure
- a depth of 2.5 feet below ground surface was used based on the sample collection depth of the borings
- calculations were made based on the area of the "Estimated Extent of Impacted Soil" multiplied by the estimated depth of impacted soil
AREA 1
CB
E
Estimated Extent of Impacted Soil
48" CHL
ISFD
TWI7I-1
10' CONC
SBI7I-6
AREA 2
E
EXIST R/W
SBI7I-5
PARCEL 171
EORI
SBI7I-4
SBI7I-3
SBI7I-2
C&G
SBI7I-1
RCP-IV
ESTIMATED TOTAL VOLUME OF IMPACTED SOIL TO BE HANDLED DURING PROPOSED CONSTRUCTION
ATC's calculations assume the following:
- impacted soil does not extend beyond the "Estimated Extent of Impacted Soil" depicted on this figure
- depths were estimated using known ground surface elevations as well as proposed drainage construction details such as size and elevation, and/or cut depths, and/or proposed utility easements
- calculations were made in MicroStation using GEOPAK

****

** VOLUME ON-SITE FOR PARCEL 171

****
** AREA #1 (SB171-6 and TW171-1) **
** **
** Construction Depth of 1.5' **
** 1469.57 Sq.Ft. x 1.5' = 2204.36 C.Ft. = 81.64 Cubic Yards **
** **
** Total contaminated depth of 2.5' **
** 1469.57 Sq.Ft. x 2.5' = 3673.93 C.Ft. = 136.07 Cubic Yards **
** **
****

****
** AREA #2 (SB171-2 through SB171-5) **
** **
** Construction Depth of 1.5' **
** 2302.84 Sq.Ft. x 1.5' = 3454.26 C.Ft. = 127.94 Cubic Yards **
** **
** Total contaminated depth of 2.5' **
** 2302.84 Sq.Ft. x 2.5' = 5757.10 C.Ft. = 213.23 Cubic Yards **
** **
****

SQUARE FOOTAGE CALCULATIONS